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by his family.
to
Bombay Branch Royal Asiatic Society

THE
ASIATIC SOCIETY OF BOMBAY
Town Hall, Bombay.

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PRIZE ESSAY

ON THE

RECIPROCAL INFLUENCE OF EUROPEAN AND MUHAMMADAN CIVILIZATION

DURING THE PERIOD OF THE KHALIFS AND AT THE PRESENT TIME.

BY

EDWARD REHATSEK.

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PREFACE.

On the 29th October 1863, the subjoined advertisement was published in the dailies of Bombay:—

"A Prize of Rs. 500 is offered for the best Essay on the following thesis:—

"'Compare the influence of Greek learning on the Arabs, under the Abbaside Caliphs of Bagdad and the Ommyade Caliphs of Cordova, with the subsequent influence of Arabian learning on the reviving European mind after the Dark Ages; and from the comparison infer the probable influence which the mature intellect of Europe should exercise in its turn, now that it is once more brought in contact with the Muhammadan mind in India.'

"The Essays are to be in the Hindustani or Urdu language of common conversation, are to be legibly written in the Persian or Roman character, and are to be accompanied by an English translation.

"The Essays must be sent on or before the 1st of October 1864 to Calcutta, to one of the undermentioned gentlemen, who have kindly undertaken to be judges:—

E. B. Cowell, Esq., M.A., Principal of the Sanskrit College;
Maulavi Muhammad Wajih, Head Prof., Calcutta Madrasa;
Maulavi Abdul-Latif, Khan Bahadur."

As the author is a great deal more familiar with the Persian than with the Urdu language, he composed his Essay in English, translated it into Persian, sent it

off to Calcutta, and was fortunate enough to receive the following communication from Sir Charles Trevelyan, who was at that time the Finance Minister of India:—

"*Calcutta*, 16*th March* 1865.

"DEAR SIR,

"I have the pleasure of sending you a copy of the Award which has been made with reference to the prize of Rs. 500 offered by me for the best Essay on the reciprocal influence of European and Muhammadan civilization, together with a draft for Rs. 250.

"You will see from the Report how highly your Essay was approved, and why the whole prize was not awarded to you.

"Mr. Cowell being absent in England, the Honourable William Muir kindly took his place in the Committee.

"I have sent both Essays to the Muhammadan Literary Society of Calcutta to be read before the Society, and to be published by them if they should so determine.

"Yours truly,

"CH. TREVELYAN.

"MR. REHATSEK,

"Bombay."

REPORT.

"We have the honour to make the following Report upon the Essays submitted to us in pursuance of Sir C. Trevelyan's offer of a Prize for the best Essay on the reciprocal Influence of Muhammadan and European learning.

"Only two Essays have been received by us, viz. from Maulavi Obeydoolah of Calcutta, and Mr. Edward Rehatsek of Bombay.

"This latter Essay is in English with a *Persian* translation.

It does not therefore fulfil the condition that the Essay shall be in the Urdu language.

"It is, however, by far the abler Essay of the two, and is replete with suggestive information and remarks; and more especially in the important branch of the subject relating to the advantages to be gained by the Muhammadan mind in India from European learning, this Essay is greatly superior to the other.

"Indeed, so little does Obeydoolah's Essay touch on this topic that it can hardly be said to have quite fulfilled the conditions prescribing that as one part of the scheme of the Essay.

"Obeydoolah's Essay is, however, instructive and useful in other respects.

"Under these circumstances, we would recommend that the Prize be divided.

"Had Mr. Rehatsek's Essay been in Urdu, we should have recommended him for the entire Prize. But as he has not fulfilled that condition, and as the other writer has done so, and his Essay is also on the whole creditable, we think that the allotment of a moiety to each will be a fair and equitable distribution.

(Signed) "W. MUIR.

"I agree with this Report, but some portions of the Essay are contrary to the tenets of Islam, are irrelevant to the question, and are not true.

"MUHAMMAD WAJIH.

"*March 6th*, 1865.

من موافقت این رپوت میکنم
اما بعض مضامین تحریرات خلاف
عقاید اسلام است و خارج از سوال
وغیر حقیقی محمد وجیه

"ABDUL LATIF.

"Mr. Rehatsek's Essay might be published with great advantage."

The Essay in its present form is somewhat enlarged; its nucleus remains, however, entirely the same as before. Montferrier's *Dictionnaire des Sciences Mathématiques* has been used in some of the biographical notices; Simonot's *Histoire de l'Espagne* in the historical account of the Khalifs of Cordova; Weil's *Geschichte der Chalifen* afforded also extremely valuable information, as well as the *Muhammadan Dynasties of Spain*, by Don Pascual Gayangos, and a few other works referred to in the Notes appended to this Essay; among the latter will also be found a vocabulary of Arabic and of some Persian terms and words still current to this day, and amply demonstrating the great influence formerly exerted by Arabian learning, also on the languages of Europe. This Essay contains, moreover, a genealogical table of the Khalifs, various chronological data, a number of facts bearing on the history of civilization, literature, and science, as well as notices of some authors, and of a few remarkable works composed in the Arabic language. The literature of the Arabs is wonderfully rich, and could not be discussed in this Essay. Hammer-Purgstall and other European, besides hosts of indigenous authors, have written many volumes on it.

EDWARD REHATSEK.

INTRODUCTION.

THE various phases in the existence of nations, such as their first developments, their vigour, and their decay, have aptly been compared with the three principal stages of human life, namely, youth, virility, and decrepitude. According to the dispensations of Providence, many nations have played their part in the theatre of this world and have vanished into non-existence, if not oblivion. Such were those of Ancient India, Persia, Assyria, Babylonia, Rome, and Greece. Power, dominion, civilization, the sciences and the arts, have left the East and have migrated to the West, whence their powerful rays are again beginning to fecundate and to revive the lands of their birth.

Although countries may intrinsically possess the germs of intellectual development, their progress on the road of civilization would nevertheless be but slow were they compelled, either by isolation or by fanaticism, to fall back upon indigenous resources alone; in fact there exists no example in history of any nation having risen to power without taking advantage of extraneous means. One of the brightest examples of this kind on record is that of the Abbaside Khalifs of Baghdád and the Ommiades of Cordova.[1]

The great physical power of the Moslems had manifested itself very early in their extensive conquests, but that alone would undoubtedly have been quite insufficient either to enlarge or to maintain them. Coming into frequent contact with the Greeks, in peace and war, in commerce, by embassies, and in almost daily intercourse, especially in Asia Minor, but more particularly in Syria, which had entirely become subject to them, the Arabs perceived that many arts and sciences flourished among the Byzantines which were either not at all, or but imperfectly, known to themselves. This state of things naturally engendered a desire to possess all the advantages connected with an advanced stage of civilization; and though they considered the Greeks inferior to themselves in some respects, they were compelled to bow to their superiority in others, and especially as far as the higher sciences were concerned. They found that although their Greek contemporaries were, as a nation, in a state of decline, they had inherited from their ancestors treasures of inestimable knowledge.

The impetus given by the enthusiasm and fanaticism of the triumph of the religion of Islám over all obstacles gave rise also to that immense tendency to expansion the consequence whereof resulted in the conquest of Syria, Egypt, and Persia. In the earliest stages of Muhammadanism nothing can be said of civilizing or scientific impulses, and the only pursuits which may be called literary were poetry, and jurisprudence based on the

Ḳoran,—Abu Baḳr having been the first "who was accustomed, in cases where neither the Ḳoran nor the oral teachings of Muḥammad could afford a clue to the solution of difficulties, to assemble the most learned men, to consult with them, and to establish judicial decisions, which afterwards obtained the force of law."[2]

The first work useful to civilization and commerce was the digging of a canal. When, namely, A'mru, the General of O'mar, entered Alexandria, A.H. 21 (A.D. 641-2), which he had taken from the Greeks, and the Khalif heard that in former times a canal had existed between the Red Sea and Egypt, he became anxious to bring the latter country into closer contact with Madynah, and therefore ordered A'mru to make the ancient canal again navigable. The General obeyed, and already before the death of O'mar (A.D. 644) Egyptian vessels sailed from Fostat, *i.e.* Babylon, to the Red Sea and thence to Arabia; but the whole isthmus was never pierced by the Arabs, for fear of giving the Greeks easy access to Madynah. The first attempt to unite both seas had been made B.C. 610-15 by Nechos the king of Egypt, but being left unfinished was completed by the Persian king Darius the son of Hystaspes, and was again neglected till renewed by Trajan; and in the second century of the Christian era there yet existed an uninterrupted waterway between the Mediterranean and the Red Sea. The short period of two years in which A'mru accomplished his task does not allow us

to doubt that some portions of the canal were even then in good condition, and required but small labour to restore them to their former efficiency. Unfortunately, the famous library of Alexandria was burnt by the Moslems, which piece of Vandalism stigmatizes them as barbarians, but is not without its parallel in Europe; and precisely the same spirit of fanaticism animated the Spaniards more than seven centuries later, when they committed eighty thousand Arabic manuscripts to the flames in the public square of Granada.

During the reign of O'thman, an authorized edition of the Koran was published under his auspices by Zeyd Ebn Thábet, and orders issued to burn all other copies differing therefrom.

A'ly, Moa'viah, Yazyd, and Merwán I., as well as Abdulmalek, were embroiled in perpetual wars, and did nothing to promote civilization; the latter, however, who reigned twenty-one years and died A.H. 86 (A.D. 705), was nevertheless a poet and an ardent admirer of poets, several of whom he maintained at his court. To Jaryr he gave for a single poem one hundred camels, eighteen slaves, and a silver goblet.

ESSAY.

CHAPTER I.

Sketch of Arabian learning during the reign of the Abbaside Khalifs of Baghdád.

Ab-ul-A'bbás-ussafah ('the blood-shedder'), the first Abbaside Khalif, had transferred his residence from Damascus to the Euphrates. His successor, Mançúr, founded Baghdád, and laid the first stone himself with the words "In the name of God! Praised be the Lord! The whole earth belongs to him, he bestoweth it on any one of his slaves whom he willeth, and secureth a happy end to those who fear him. Build with the blessing of God!" The walls surrounding the town were, according to Ṭabari, fifty ells broad at their base, and twenty at the top. In the middle of the town a citadel and a mosque were built. In spite of the parsimony of the Khalif, who paid the labourers as badly as he could, 4,008,633 dirhems are said to have been disbursed to found Baghdád. The garrisons of the capital and of some forts were to keep the surrounding country in subjection, Baghdád being at first considered only as a great strategic point, and not the centre of learning and civilization which it afterwards became.

Only a few works composed or translated in Mançúr's time can be mentioned, but from those published during the reigns of his successors the certain conclusion may be drawn that he himself had already protected learning of all kinds, and that especially the study of mathematics, grammar, jurisprudence, history, and theology was in his time systematically pursued with the aid of foreign teachers. Mançúr's belief in astrology and medicine probably induced him to encourage the study of the latter science and of astronomy. Muḥammad Ebn Essaḥák, the originator of Arabic historiography, the author of a life of Muḥammad and of a book on the campaigns of the Arabs, wrote at the court of Mançúr. Also the youth of Waḳidy and of Almaidany, whose works served all later historians as sources on the two first centuries of Islám, and which the celebrated Ṭabari quotes almost in every page, falls yet into the khalifate of Mançúr, at whose death the former was already twenty-eight, and the latter twenty-three years old. Alasmáy, one of the first grammarians and Arabic lexicographers, who composed several works on natural history and on geography, wrote likewise during this period, since he was born A.H. 122 or 123 (A.D. 739 or 740). Also the great philologer Khalil, the inventor of Arabic prosody, as well as the grammarian Alakhfash senior, and Sibaweih, the pupil of both of them, flourished during the khalifate of Mançúr. Also the first theologico-juridical books and collections of traditions of Malek Ebn

Anas Abu Ḥanifah and of others were composed during the reign of Mançûr, before whose time the whole learning of the Arabs was mostly confined to oral communications.

It is impossible to ascertain how far Mançûr was directly concerned in these transformations. It is evident that the more the Arabs mixed with foreign nations, and the more these accepted their religion, the want of preserving the Ḳoran in a correct form, of understanding it, of consigning the life and acts of Muḥammad to writing, as well as of determining and arranging the rules and meanings of the language used by him, became the more pressing. Nor could the few civil and criminal laws of the Ḳoran suffice the Arabs, who had now begun to dwell in towns under entirely different circumstances; and it became necessary to collect the sayings of the Prophet and of his successors, to develop them further by analogy, and to accommodate them to the new state of affairs. Thus already the requirements of the Faith tended to promote the study of philology, history, and jurisprudence.

The question whether the Arabs had in so short a time by their own efforts alone risen from their low state of civilization must be answered in the negative, because the beginning of Arabic literature is contemporaneous with the victories of the Abbasides, in consequence whereof the Persian element predominated in Islám, and because the celebrated scholars were of

foreign, and mostly of Persian, extraction. Converted Persians devoted themselves chiefly to science, and brought system and order into the chaos of traditions; in this manner they were able, after losing their material power, to attain spiritual dominion and enjoy honours and respect. During this time already Persian works were translated into Arabic, and here A'bdullah Ebn Almuḳaffa', the most learned individual of his time, may be mentioned, who translated the well-known *Kalilah va Damnah*, or the Fables of Bidpai, from the Pehlvi, as well as several historical works, among which was also the great King-Book, that served Firdousy as a source for the *Shahnamah*, and several philosophical and medical works which had already before been turned into Persian from the Greek. A'bdullah the son of Almuḳaffa', called in his own country Ruzbeh, was born in Persia, and professed for a long time the Zoroastrian religion. His father, Daduyeh, who had incurred the displeasure of the famous Ḥajaj Ben Yusuf, was put to the torture by him; in consequence of the pains he suffered on that occasion his hand became contracted, and therefore he was surnamed 'Muḳaffa', the Arabic verb *taḳaffua'* meaning 'to contract, to wrinkle.' His son A'bdullah, the individual here in question, was in the service of A'ysa Ben A'ly, the paternal uncle of the two first Khalifs of the Abbaside dynasty, Saffáh and Mançúr. A'bdullah was induced by his employer to abjure his paternal religion,

and to embrace Islám. His orthodoxy was, however, always suspected. He is, with some other enemies of Muhammadism, accused of having endeavoured to imitate, and even to surpass, the style of the Koran, which every good Musalman is bound to consider superior to all the efforts of the most eminent human talents. A'bdullah was greatly addicted to joking; and this propensity, to which he imprudently abandoned himself, also contributed to his tragical end, as will be seen immediately. The Khalif Mançúr had scarcely ascended the throne when he was compelled to defend himself against a dangerous rival, his uncle A'bdullah the son of A'ly, who was, however, beaten by the armies of Mançúr, and took refuge in E'ráḳ, with his two brothers Soleymán and A'ysa. The two last mentioned princes succeeded, however, in obtaining the pardon of Mançúr for their brother, and having come to Boçrah they charged A'bdúllah the son of Almuḳaffa' with the composition of the document of amnesty, he being the secretary of A'ysa, and considered very skilful in the writing of acts containing stipulations or reciprocal engagements. The manner in which A'bdullah acquitted himself of this commission shocked Mançúr, who possibly cherished the project of sacrificing his uncle A'bdullah the son of A'ly as soon as he could, which project he actually carried out A.H. 139. Mançúr, being informed that the document of amnesty had been composed by A'bdullah the son of Almuḳaffa',

despatched secret orders to Sofyán the son of Moa'viah, governor of the town of Boçrah, to kill him. Nothing could be more welcome than this command to Sofyán, who had very often been the subject of the jokes and of the most stinging sarcasms of A'bdullah, and who had sworn to take vengeance on him. A'bdullah once visited Sofyán on business for A'ysa the son of A'ly, and Sofyán profited by this occasion to wreak his vengeance and that of Mançúr. He caused a stove to be heated, and cutting off the members of A'bdullah one after another threw them into it. Lastly the dismembered trunk of the unfortunate man was put into the oven, and Sofyán said: "I have incurred no blame at all by making an example of thee, because thou art an infidel and hast corrupted other men." In these words he alluded to the suspicion of atheism, or at least of Zoroastrianism, to which A'bdullah was subject.[3]

Although Mançúr encouraged and highly esteemed political sciences, he banished music and poetry from his court. The cold, sober, and outwardly strict religious Khalif felt on the one side probably no inclination for such enjoyments, and on the other he was too avaricious to reward efforts of genius of this kind. Ṭabari even relates that on a certain occasion he caused the poet Muammal Ebn Amul, to whom his son Mohdy had made a present of 20,000 dirhems for a panegyric, to be sought out, and a portion of the gift to be taken away again from him, although he himself had con-

fessed the poem to be a masterpiece, and must have been greatly pleased that the heir to the throne, whom he had unjustly substituted for A'ysa, gained in popularity by such a composition. When once one of his slaves was playing on the tambourine he ordered the instrument to be broken on his head.

Under Almohdy, the successor of Mançúr, the constantly growing capital became soon the rendezvous of all the opulent and high personages of the empire, the streets echoed with music and song, scholars and poets were rewarded in a princely manner, commerce and industry were encouraged, posts were established to all parts of the country, great pilgrimages were undertaken with extravagant beneficence and luxury, in the advantages whereof also the destitute participated. But Almohdy was most revered by Muhammadans on account of his glorious campaigns against the Byzantines, and on account of his love of justice, in conformity wherewith he had surrounded himself by judges, according to whose advice he framed his decisions. His reign was, however, also troubled by all kinds of revolts, and terminated with his death, which took place on the 4th of August A.D. 785, and he was succeeded by his son Musa Alhády, who survived him only one year one month and fourteen days.

Harún, surnamed Arrashyd, likewise a son of Mohdy, was most unscrupulous in persecuting and destroying his enemies, but made a great show of religion, and went

eight or nine times on pilgrimage to the holy cities of Makkah and Madynah. During his long reign[4] many works were translated from the ancient Greek language, which the Arabs called Yunány.[5] His great name is chiefly due to the praises of the celebrated scholars who flourished during his reign. In his private relations he displayed much tact and amiability, and in his public ones a great deal of spirit and power. His bravery and liberality were duly appreciated by the Arabs; and by his love of magnificence, and the luxury (never before witnessed among them) cherished at his court, commerce and industry were encouraged. In spite of his unexampled prodigality, immense treasures were found at his death, which he squeezed out of his subjects, and even from his generals and governors, whom he frequently caused to disgorge their wealth; his liberality, however, towards the inhabitants of the holy cities, to the family of the Prophet, and to the scholars and poets, according to whose traditions historians represent him, transmuted the blame he deserved into unmeasured praise, so that he was also by European authors called a second Augustus. They also report that Charlemagne sent three envoys, two of whom were Christians and one a Jew, to Baghdád, to plead with the Khalif for the undisturbed pilgrimage of Christians to Palestine, and commerce therein. Harún received the ambassadors amicably, granted their request, presented them with the only elephant he yet possess-

ed at that time, as well as with a magnificent tent of the richest kind, all sorts of fumigatories, two large candelabra, and one clepsydra.[6] Harún is said to have despatched another embassy, A.D. 798, to China, probably to arrange the relations of the principalities in Transoxiana which bounded the Celestial Empire, and which in their revolts against the khalifate had frequently implored the emperor of China, their former lord, for aid, and had sometimes also been supported by his subjects who dwelt on the frontiers.

Harún was surrounded by flatterers, like all monarchs; and panegyrists greatly flourished at his court. It is true the poets of this time no longer commanded that natural vigour which distinguished the poetry of Arabian paganism and the first period of Islám, but their verses were more fluent, soft and clear than those of their predecessors. All branches of philology, grammar, lexicography, prosody, and rhetoric were during this period scientifically cultivated by Assmái, Sibaweih, Kizai, Akhfash, and others, and of course greatly influenced the art of poetry. A beginning was also made of preserving ancient poems in writing, and of setting them up as models.

Not only Harún himself, but also his viziers the Barmakides and their successor Alfadl Ebn Rabia', encouraged the study of philosophy, of mathematics and of jurisprudence in the widest sense of the word; they also paid attention to the natural sciences and to

medicine. Nevertheless the works of Greek philosophers were probably not translated into Arabic during Harún's time already, and that glory belongs only to his son Mámún; possibly, however, even before that time some attempts may have been made to acquaint the Arabs with the medical works of the Greeks. It is still less probable that then already musical works had been translated from the Greek, although at the court of Harún-Arrashyd music and singing had attained a high degree of theoretical development; and the singer Ebráhym, as well as his son Essaḥáḳ, and the musicians Zulzul and Barssum, were not less respected than the poets Abu Nawas and Merwán Ebn Aby Hafss, the philologers Abu O'beydah and Assmái, the grammarians Akhfash and Ḳizai, &c.[7]

Muḥammad Al-Ámyn, the son of Harún, reigned only four years five months and fifteen days; he was assassinated on the 24th September A.D. 813, and was succeeded by his own brother A'bdullah Almámún, the second son of Harún-Arrashyd.

The principal teacher of Mámún was John Mesva, a Christian physician, who imparted to him great taste for science and literature. When this prince attained supreme power he did not disappoint the expectations entertained of him in his youth. During his reign the Arab nation sought in the study of the sciences a glory more pure and more worthy of the admiration of men than that of war. The liberal protection granted

to scholars by the Khalif, and above all his own example, promoted that movement of civilization which had already manifested itself among the Arabs during the reigns of his predecessors Mançúr, Harún, and Al-Ámyn. He called to himself learned men and encouraged them by rewards, and procured at any price the original books which Greece possessed. When a great victory enabled him to dictate peace to Michael III., he exacted the rarest works that existed in Greece as a tribute from the emperor. In this manner the Arab nation entered into possession of all the riches of the literature of antiquity.

Mámún was much involved in external and internal wars, and religious disputes with various sects, like nearly all his predecessors. His love of learning must have been known to foreign princes, because one of them sent him a book called *Jawudán Khired*, or "Eternal Wisdom," composed in the ancient Persian language; the chief contents of the work consisting of moral precepts, such as injunctions of humanity, self-control, equanimity, and abstinence from sensuality, based on the faith in a higher Being, a divine providence, and the immortality of the soul. This non-Muhammadan sovereign is said to have been a king of India, but he was very likely a prince of some Persian country, such as Kabulistán.

The theological disputes of those times necessarily led to the study of Greek philosophy, which was no

longer quite foreign to the Arabs even in the time of Mançúr. Already Nushirván the Just had caused the works of Plato and Aristotle, as well as those of the Greek physicians, to be translated into Persian, all of which must, however, again have been lost during the wars. Mámún appointed the above-named John Mesva, whom the Arabs called Yahya Ebn Masewi, and his pupil Honeyn, who was likewise a physician, to collect, to buy, and to translate the philosophical works of the Greeks, or to get them translated, through the Syriac, into the Arabic language. By the endeavours of Honeyn the writings of Aristotle are said to have been translated into Arabic, and he himself travelled to Greece or to Alexandria to acquire greater proficiency in Greek.[8] These works were immediately studied by the chiefs of the Motazzelite sect[9], to which the Khalif himself belonged, and the dialectics of Aristotle were used in dogmatical disputes, wherefore Mámún was by the orthodox party decried as a promoter of infidelity. That under the direction of the just mentioned two physicians also the study of medicine and of the natural sciences made progress need scarcely be mentioned. Both of them composed various independent works on anatomy, surgery, pathology, and pharmacy. Honeyn translated a great portion of the works of Hippocrates, Galenus, Dioscorides, Porphyrius, and of Paulus Ægineta, and under his superintendence

the physician Yaḥya Ebn Albaṭryḳ wrote, who translated not only single works of Hippocrates, but also several physical, philosophical, and political ones of Aristotle, and, according to some, also the *Timæus* of Plato.

Astronomy was one of the sciences most encouraged by Al-Mámún. He made it the special object of his own studies, and was ardently engaged in them, without neglecting the numerous duties required of him in the government of his vast empire. He ordered several degrees of the earth to be measured under different meridians, and his astronomers were divided into several bands to carry out his orders. Ebn Yunis relates that some of them carried on their operations between Wamia and Tadmor, but according to Masudi they worked between Raḳḳah and Tadmor, and Abulfeda asserts that they went to the plains of Sinjár, where they measured two degrees. The nations of Europe sent out expeditions only as late as the last and the present century to ascertain the dimensions of our globe.[10]

By order of the Khalif the elements of Euclid were also translated, as well as the great astronomical work of Ptolemy called in Arabic *Tahryr Almajasty*, of which the European nations have made *Almageste*. The Moslem Alhassan Ben Yusuf and the Christian Sergius are named as its translators. From that time numerous copies of the *Almageste* circulated among the

Arabs, and popularized astronomical science in that great nation. Among all the learned Arabs whose commentaries contributed most to explain its various hypotheses and to facilitate its study, Thábet Ben Korra and Naçir-uddyn are quoted. The Khalif pointed out to the scholars by whom he was surrounded many labours which were not less useful than those just mentioned. His astronomers made many important observations, and drew up tables of the sun and of the moon more exact than those of Ptolemy; they bear his name, and are also called 'verified tables.'

The Arabs did not confine themselves to observations, the accuracy whereof modern science has often occasion to approve of; they also made great efforts to improve astronomical instruments; and when they were, by their invasion of Spain, enabled to communicate to Europe the knowledge they had acquired, this powerful means of verifying their calculations and results contributed much to propagate them.[11] The astronomers who distinguished themselves most during this brilliant reign, and who most successfully realized the thoughts of the Khalif, were Habesh-el-Meruzy, one of the authors of the tables; Ahmad Ben Kolheyr, surnamed Alfarghany, and by corruption El-Fragan; A'bdullah Ben Çaleh, Muḥammad Ben Musa, and Máshá-Allah-el-Yshudy.

Mámún encouraged also philological and historical studies, which attained during his reign the highest

bloom. He engaged the grammarian Yahya Ebn Zayd, known by the name of Alfarra, who was the first master of the grammatical school at Kufah, to be the teacher of his sons. The grammarian Ebn Shumeil, who was obliged to leave Boçrah because he was unable to earn his daily bread, found a munificent patron in Mámún, who gave him fifty thousand dirhems on the occasion of a certain philological explanation. Two other philologers of this time must not be left unmentioned, although their relation to Mámún has not become more particularly known. One of them is Muḥammad Ebn Zayyid from Kufah, known by the name of Ebn Ala'aráby, who, together with the singer, musician, and poet Essaháḳ Ebn Ebráhym Almouçuly, possessed the greatest collection of philological manuscripts; the other is the celebrated pupil of Sibaweih, Muḥammad Ebn Almuṡeyyar, usually called only Kutrub.

The high rank of Alwaḳidy, who was appointed Ḳadi of the eastern part of Baghdád, and to whom the Khalif granted also many other favours, bears testimony to the bias of Mámún towards scholars who especially occupied themselves with the history of the Arabs. Also Almadayni, who wrote the history of the Arabs down to his own time, whilst Waḳidy especially collected the traditions relating to their first conquests, seems to have been connected with the court already in his capacity as a Motazzelite. Lastly, also the historian

A'bd-ulmalik Ebn Hisham must be mentioned (although he lived in Egypt), because he has compiled the most ancient Arabic historical work which has reached us, namely, the biography of Muḥammad by Ebn Essaḥâk; whereas the labours of his contemporaries Alwaḳidy and Almadayni are known to us only from extracts of Ṭabari and other later chronicles.[12]

Mutaçim succeeded his brother Mámún as Khalif, and was as ignorant as the former was learned, so that the cultivation of Greek science which nevertheless continued during his reign must be ascribed to the patronage afforded to it by some of his Viziers. It is needless here to repeat the names of the Christian physicians and philosophers who flourished under his predecessors, and were still active during his reign as teachers and translators. The Jewish physician Zayin Uttabary and his son Hassan A'ly Ebn Sahl must, however, not be passed over in silence; the former translated not only medical, but also philosophical and mathematical works into Arabic; the latter afterwards made profession of the Muhammadan religion, and was the teacher of the celebrated physician Razy. Alkindy, a portion of whose works is also known in Europe, studied at Boçrah all the Indian, Greek, and Persian works known in his time; he soon made himself master of the Greek authors in their original language, and became celebrated as a translator of their philosophical and mathematical works, as well as a com-

mentator, and an independent author of medical and of astronomical writings. He had already been called to Baghdád by Mámún; and at the court of Motaçim, from whose reign the beginning of the gradual decay of the Abbasides may be dated, he enjoyed the highest consideration.

Alwathek, the son of Motaçim, was a profligate and intolerant Khalif, who nevertheless found eulogists among the Shia'hs, because he protected the family of A'ly, and liberally salaried poets.

Ja'fer, the brother of Alwathek, was at his inauguration surnamed Almutawakkil. He was a feeble, wicked, and intolerant prince, who adopted the tenets of the Sunnis, and persecuted and killed persons speaking evil of Abu Bakr, O'mar, and O'thman, in the same way as Mámún had punished those who doubted of the excellency of A'ly; and whilst formerly those who professed the Koran to be existing from all eternity suffered persecution, now those who asserted that it was created were capitally punished. But although this Khalif acted contrary to the most important religious and political dogmas of his predecessors, he imitated them in his encouragement of bards, poets, and scholars. The physician Bakitchu Ebn Jabryl was one of his most intimate companions, and acquired during his reign the dignity of a prince, as well as the treasures of a king, but fell A.H. 244 (A.D. 858) into disgrace, was exiled to Bahrein, and deprived of his whole fortune. He

was probably himself the cause of his reverses, which he had brought on by his immoral life, by his boundless extravagance, and by his temerity towards the Khalif. Israyl Ebn Zakrya Uttayfury, a distinguished Christian physician, also lived at the court of Motawakkil. Abul Hassan A'ly Ebn Sahl, the author of several medical and philosophical works, administered the highest public offices during the reign of Motawakkil. Stephanus the younger, the famous translator of Dioscorides and of Galenus, as well as Habeish Ebn Alhasan, the disciple and nephew of Honeyn, also lived at the court of this Khalif. The physician and alchemist Thouban Ebn Ebráhym, known by the name of Dulnoon Almiçry, was by the Khalif called from Egypt to Baghdád. It is true Abu O'thman Amr Ebn Behr, the author of a History of Animals and of other works, was, as the friend and pupil of the Vizier Ebn Alzeyyat, imprisoned when the latter was capitally punished, but was soon released, and was, on account of his multifarious knowledge, afterwards appointed by Motawakkil to be the teacher of his son, but was again dismissed, only on account of his frightful ugliness, but with a gift of ten thousand dirhems.

Also the physicians and translators mentioned already above, such as Honeyn, his son Essaháḳ, and John Mesva, the fathers of Greek learning among the Arabs, were still active under Motawakkil, and enjoyed from him the same support granted to them in former times by Mámún.

Although some of the former Khalifs had died violent deaths, now murders and poisonings follow each other closely. Motawakkil, Motazz, and Mohtadi were assassinated; Mantaçer, Mota'mmed, and Motadhid are said to have been poisoned; and Moktadir, during whose reign to the previous losses that of the whole of the African possessions was also added, was slain by a eunuch. Religious and political factions raged; the Khalifs were swayed by them like unsteady reeds in a gale, and yielded their authority to individuals stronger than themselves, whose puppets they became. Hence it is no wonder that so turbulent a period was unfavourable to civilization and learning.

Nevertheless, the life of Muhammad Ben Jáber, whose Latinized name is Albatenius, shows that even in those disturbed and fanatical times religious prejudices were occasionally set aside in favour of ability and science. He was not a Moslem; on the contrary, he professed the Sabæan religion, in spite of which he was appointed governor of Syria. He was born in the town of Battan, in Mesopotamia, and was therefore called Elbattany, by which name he is generally known in Europe. The precise epoch of the birth of this great man is not known, but it is certain that he flourished about fifty years after the Khalif Almámún, *i.e.* about A.D. 880. Like the majority of Arab mathematicians, he specially cultivated astronomy, the study of which he prosecuted with the double ardour of religious feeling and of thirst for

knowledge. All his observations were either made at Antioch, or in the town of Rakkah in Mesopotamia, whence he is by some old authors called Mahometus Aractensis. This illustrious astronomer adopted nearly the systems and the hypotheses of Ptolemy, but he rectified them in several points, and made some discoveries besides, which procured him a distinguished place among the scholars whose labours have enriched astronomical science. Muḥammad Ben Jáber approached much nearer to the truth than the ancients as far as the movements of the fixed stars are concerned. Ptolemy made them pass through one degree only in one hundred years; the Arabian astronomer makes them pass through that space in seventy years, and according to modern astronomy they need seventy-two years. Secondly, he measured the greatness of the eccentricity of the solar orbit, and a more correct result cannot be obtained. He determined it to consist of 3465 parts, the radius consisting of 100,000; and this calculation agrees with several modern astronomers. To the work containing all his discoveries he gave the name of *Zij Saby*, which was translated into Latin under the tittle 'De scientia stellarum,' the translator of which, as one of his biographers justly remarks, knew neither Arabic nor Latin. The first edition of it appeared at Nuremberg, A.D. 1537, but it is believed that the original is in the library of the Vatican. Muḥammad Ben Jáber was classed by Lalande among the forty-two

most celebrated astronomers of the world. He died, according to Abul Faraj, A.H. 317 (A.D. 929).

Abul Hassan A'ly, surnamed 'the son of the Greek,' whose works the famous Motannabbi learnt by heart, was born A.H. 221 (A.D. 836). The time of his death is not certain; it took place between A.H. 276 and 284 (A.D. 889 and 897), during the reign of the Khalif Motadhid, by order of whose Vizier he was poisoned. His only occupation was poetry, and he left *kassidahs*, as well as small poems of the panegyrical and satirical kind. The just mentioned poet had a very great regard for Ebn Almutazz, who flourished during the reign of Muḳtadir, and wrote not only poetry, but left several works on ethics, rhetoric, music, and a history of Arab poetry. Ebn Bassam was a famous satirist who died A.H. 302 (A.D. 914); and Ebn Allallaf, the blind poet, enjoyed high favour with the Khalif Motadhid. One of the most celebrated poets of this epoch, who wrote also on philology and grammar, was Ebn Doreyd. His *Maksurah* was edited by Boysen with a Latin translation; he was born at Boçrah A.H. 223 (A.D. 837), and lived during the Khalifate of Muḳtadir, whom he survived but one year.

Abu Bakr Muḥammad Ebn Yahya Assuly was an historian and a poet. His chief works are a history of the Karamatians, a biography of celebrated poets, and a book of the Viziers. On account of his predilection for the race of A'ly he was exiled from Baghdád

to a remote village, where he died A.H. 335 or 336 (A.D. 946 or 947). His *Kitab Futuh ulbuldán*, or 'Book on the conquest of countries,' is known in Europe, and he died at Baghdád during the same year as the Khalif Mota'mmed. Ebn Kuteiba left the *Kitab Alma'árif*, or 'Book of Knowledges,' which is more of a chronogical than of an historical character, but contains also valuable information on the genealogies of the Arab tribes and on the civilization of his times; he left also other works on philosophy, literary history, and theology. He was born A.H. 213 (A.D. 828), and died A.H. 270 or 276 (A.D. 883 or 889). According to Haji Khulfah, the works of the first of the two just named historians consist merely of extracts from other chronicles, and the latter is said to have compiled the greater portion of his *Kitab Alma'árif* from the historical work of Ebn Hanbal; but the case was quite different with Ṭabary, whose full name is Abu Ja'fer Muḥammad Ebn Jaryr Uṭṭabary. He collected all the traditions current during his time and embodied them in his work, a copy of which, belonging to the Berlin library, and treating on the history of the Khalifs from A.H. 70 to 159, was used by Dr. Weil (to whose *Geschichte der Chalifen* the author of this Essay is so much indebted for his information), and consists of three strong folio volumes, but the entire work is certain to have been much more extensive, and efforts are now being made to print it from

the manuscript portions of it scattered in various libraries.

These annals were more or less faithfully epitomized in Persian and Turkish; they were also continued by the Sabæan Thábet, who brought them down to A.H. 363, and by his nephew Hilal Ebn Almuhassan till A.H. 447, and by Alfarghany as far as A.H. 479. Masudy, whose 'Golden Meadows' have become more generally known by Dr. Sprenger's admirable translation (died A.H. 345, A.D. 956), had promoted not only the study of history, but also that of geographical science, which was afterwards illustrated by works strictly bearing on it, such as Ebn Haukal, Edrisi, Bakri, and a number of others critically examined by Reinaud in his edition of Abulfeda's Geography.

Almubarrad, the celebrated grammarian, who was born at Boçrah, and his contemporary Ahmad Ebn Yahya, who belonged to the school of Kufah, were considered the best philologers; the former died A.H. 285, and was outlived six years by the latter. The chief pupils of these two teachers were Niftaweih and the younger Akhfash. The disciple of the latter was A'bdurrahmán Ebn Essaháḳ, who died A.H. 337, and his voluminous grammatical work bears the title "Book of the Great Collection."

Turun, a military leader and a Turk by birth, a companion of thieves and robbers, to whom he issued licenses by letters patent, attained great power, was

displeased with Almuttaki, the puppet Khalif, got his eyes blinded, and declared the throne vacant, A.H. 333 (A.D. 944). At that time the temporal power of the Khalifs extended scarcely further than the limits of the city of Baghdád. In the east the Buyides and Samanides reigned, and fought with each other for the possession of Rei; and in the west the Ykshides ruled, who contended with the Hamdanides, to whom the whole of Mesopotamia was subject, for the possession of northern Syria. In O'man, Ebn Vajih had usurped dominion, and being assassinated was succeeded by his son Nafy; Boçrah was still in the possession of the Albardy family, which had, however, become split into factions. Now the Khalifate had sunk down to a mere name, and the real masters were the Generals, even before they assumed the title of Commander-in-Chief; so that even Turun, who represented the Khalifate, had no authority beyond the capital, which had, in consequence of frequent civil wars, perpetual insecurity, famine and plague, lost its populousness and wealth.

As far as philosophy is concerned, it made no progress among the Arabs from Alkindi to Alfarabi, but by multiplied and corrected translations from the Greek it became more and more domesticated among them, and gave rise to a kind of scholastic science, which was afterwards transplanted to the West, into the domain of Christian theology. Also during this period mostly physicians taught at the same time philosophy, or

composed and translated works on mathematics and natural history. Among these especially the Sabæan Thábet Ebn Ḳorra (already mentioned above during the khalifate of Mámún), who devoted himself at Baghdád to the study of philosophy, medicine, and mathematics, and who died a celebrated author and translator A.H. 288 (A.D. 900-1), at the age of sixty-seven years, is deserving of a place of honour among the scholars of that time. Also his son Sinan, who lived at the court of the Khalifs Muḳtadir and Ḳaher, was celebrated as a physician and a mathematician, as well as his grandson Thábet Ebn Sinan. By the side of the first, Razy, who died at the end of the Khalifate of Muḳtadir, deserves to be mentioned on account of his high renown as a physician and philosopher, as well as on account of his activity as an author in the various branches of medicine and philosophy. The Jewish physician Essaḥák Bin Suleymán from Egypt, who died A.H. 320, likewise distinguished himself. The Christian Kofta Ben Luka, from Balbek (died A.H. 311), was an author and translator of mathematical and of philosophical works; and the Nestorian Abul Beshr Mata, who delivered in Baghdád lectures on Aristotelian philosophy (died A.H. 329), was a commentator on Aristotle and translator of Greek commentaries. Among the pupils of Abul Beshr Mata was the celebrated Arabian philosopher Abu Naçar Muḥammad Ebn Muḥammad, known by the name of Alfarabi (from Farab

in Turkestán), who afterwards himself taught philosophy at Baghdád, and terminated his life at last at the court of the Hamdanides in Damascus A.H. 339. The greatest merit of Alfarabi consists in having made Aristotelian philosophy quite intelligible to the Arabs, although not without an admixture of Neo-Platonist doctrines; for, although he took it as the basis of his researches, his system is, on account of the attempt to make philosophy agree with the dogmas of Islám, just as little free from internal contradictions as those of his predecessors, who based theirs on the doctrines of the Ḳorán. As until this period Greek philosophy had been studied by the Arabs more on account of its form and its dialectics, than for the sake of its internal essence, the principal questions on which their disputations turned remained the same as before their acquaintance with the Greeks. The doctrine of the Shia'hs about the Emámship, and the doctrine of emanation connected therewith, which had been borrowed from Indian theosophy, was scientifically developed by the Neo-Platonists. The doctrine of the Motazzelites on the absolute unity of God, admitting neither of a plurality of attributes nor of an uncreated Ḳorán, which had been a subject of dispute already before the time of the Abbasides, received by the aid of Aristotelian dialectics a systematic form; as well as the polemics concerning the liberty of the human will, which was on

the one hand advocated to such a degree as to deny all interference of divine activity in human affairs, and was on the other, by the Jabarites, disallowed to such an extent as to degrade man to the state of a thing having neither power nor will. Only at the end of the period which now engages our attention Abul-Hassan Alashari (died between A.H. 330 and 340), the apostate Motazzelite and founder of the scholastic dogmatism of Islám, stepped forth as a mediator, and attacked with dogmatical and dialectic weapons the other doctrines of the Motazzelites as well as of pure philosophy; and probably to his great authority the stagnation in the domain of philosophical research among the Arabs of the East till the time of Avicenna, as well as the gradual decline of Motazzelite doctrines, must be ascribed.

Although Abu A'ly Husseyn Ebn A'bdulla Ebn Syna, known in Europe by the name Avicenna, cannot be called an Arab in the strict sense of the word, having been born at Assenah, a village in the vicinity of Bokhara, A.H. 370 (A.D. 980), yet, as he wrote in that language, and was one of the most famous scholars, he ought to be mentioned in this place. This scholar, extraordinary by his knowledge and by the prodigious activity of his mind, was for a long time known in Europe only by the name of "the Hippocrates of the East." His medical works are not scarce even in India, and the best Arabic edition of his "Canon"

seen by the author of this Essay was lithographed at Lucknow A.H. 1265 in two goodly quarto volumes, each consisting of more than five hundred pages. Ebn Syna was, however, not only a great physician; the mathematical sciences also are indebted to him for several works, which allow us at least to see the point of view whence these high sciences were considered by the Arabs, and the degree of perfection they had attained among them. The life of Ebn Syna, which was full of labours astonishing the imagination by their number and by their importance, and was permeated by catastrophes and strange adventures, much resembles the histories of those fantastic and marvellous personages delineated in the "Thousand and One Nights," which bear so faithful a stamp of the national genius of the Arabs.

Ebn Syna manifested at an early age the powerful intellect with which he was endowed. He was eighteen years old when he had terminated all his studies in the various sciences which were afterwards to become the objects of the works admired in his country, and his titles to glory. At the age of twenty-one years he had composed an encyclopædia, to which he afterwards added a commentary consisting of not less than twenty volumes. He was fond of travelling, and visited several countries of the East; and, announced by his renown, he was by turns the favourite of princes and the object of persecution. When first physician and vizier of

Majd-ud-Doula, a Sultan of the dynasty of the Buyides, he was twice deposed and thrown into prison. These various changes of fortune to which he was subjected are attributed to circumstances dishonourable to his character, and justified by the epitaph which a poet engraved on his tomb. He was much inclined to excess in wine, and debauchery, and it appears he betrayed his benefactor to A'la-ud-Doula, the prince of Ispahán, an enemy of the Sultan who had received and overwhelmed him with honours. After four years of a hard captivity he succeeded in eluding the watchfulness of his jailors, and found an asylum with this same A'la-ud-Doula, whose service he entered. Amidst these dangerous adventures, and in spite of the sorrows inseparable from an agitated life, Ebn Syna did not neglect his scientific labours. His taste for study and his activity were such that he himself testifies of never having allowed one day to elapse without writing fifty leaflets.

The list of manuscripts left by him and existing in various libraries in Europe amounts to a considerable number. We possess of him a "Dissertation on the systematic division of sciences," a "Collection of astronomical observations," a complete "Treatise on mathematical sciences," and a "Collection of mathematical and philosophical tracts."

The last scholar to be mentioned in this chapter is also one known to learned Europeans, by whom he was called Alhazen; his full name is, however, Alhassan Ben

Hassan Abor A'ly Ben Alhaytham : he was a native of Boçrah and a celebrated mathematician, but lived in Egypt at the court of the Khalif Elhakem about A.H. 400 (A.D. 1009), and died at Cairo A.H.430(A.D. 1038). Astronomy and optics were his special study, and in this respect he deserves to be mentioned with distinction among the men of his nation whose labours and researches have contributed most to spread light and science in Europe. We have from him a "Treatise on Optics," some portions of which manifest great scholarship, and happy attempts to explain phenomena occurring in his time. That book may be recommended in another respect also; it may be very useful to the literary and critical history of the sciences among the Arabs, the progress of which it summarizes in a table of the knowledge attained by that illustrious nation. His optics, translated from the Arabic and united with those of Vitellion, were for the first time published at Basle A.D. 1572 by Risner, under the title of "Thesaurus Opticæ."

The effeminacy and imbecility of the majority of the later Khalifs, together with the internal and external wars which raged almost without interruption, were detrimental to civilization and to the pursuits of science; and various sovereignties independent of each other having gradually sprung into existence, such as the Khalifates of Boçrah, Kufah, Khorásán, Persia, Egypt, Spain, &c., the government of the Khalifs, as already

mentioned above, at last extended scarcely beyond the limits of the city of Baghdád, which became a prey to perpetual bloodshed and rapine, so that the following words of Ebn Sayd, applicable to it in its bloom, now became only a sad irony:—"Baghdád is certainly the capital of the world, and the mine of every excellence; it is the city whose inhabitants have always been the first to unfurl the banners of knowledge and to raise the standard of science; indeed their subtlety in all branches of learning, their gentle manners and amiable disposition, noble bearing, acuteness, wit, penetration and talent are deservedly praised." The observant reader will in the decline and fall of the Abbasides perceive many analogies with the decline and fall of the Roman empire; excessive luxury and wealth coupled with subsequent effeminacy, want of concentration and want of patriotism, brought on factions and encouraged the attacks of foes in Rome as well as in Baghdád; and the characters of some emperors as delineated by Suetonius find their parallels in the wicked Khalifs of the Abbasides, the thirty-sixth, or according to others the thirty-seventh of whom, Almostaçem Billah, lost his life, A.H. 656 (A.D. 1258), when Baghdád was besieged and taken by the Mongol chief Holagu, the grandson of Jengiz Khan. The Mongols devastated the country, and utterly extinguished its civilization.

CHAPTER II.

A general view of history and science under the Ommyade Khalifs of Cordova.

A.H. 92 (A.D. 710-11).

Simonot thinks that the narrative of the seduction of Count Julian's wife or daughter by King Roderic, in consequence whereof the former is said to have invited the Arabs to invade Spain to avenge himself, is a pure fable; but Pascual de Gayangos states (vol. i., p. 514) that an Arabic author of the 10th century, who calls Ilyán a merchant, mentions that Roderic had done violence to his daughter, although historians of a later date say nothing about his misunderstanding with the king. Dr. Weil quotes the following passage from Ebn A'bdulhakam, the oldest Arabic source on the conquest of Spain:—"Tarik fought for some time there [in Africa, in the region of Tangiers], and this was in the year 92 [A.D. 710]. At the place of crossing between it and Andalus [the Arabic name for Spain, derived from Vandalus] there was a man of the Ajam [foreigner] whose name was Bilian [Julian] and who was lord of Sebta; he was also appointed over a town on the crossing-place to Andalus, which was called Alkhadra [the present Algesiras, called by the Arabs Jazirat-Alkhadra, 'the green isle'], towards the side of Tangiers. Bilian was subject to Loderik

[Roderic], the lord of Andalus, who dwelt at Toleitalah [Toledo]. But Tarik entered into an epistolary correspondence with Bilian, and flattered him till they became friends. Bilian had, namely, sent one of his daughters to Loderik, the lord of Andalus, to care for her education, but he had made her pregnant. Therefore Bilian, when he obtained the news, said, 'I cannot punish him for this infamous deed except by leading the Arabs into the country.' Accordingly he sent a message to Tarik, and offered himself to bring him to Andalus." The chief of the Arabs whom Julian had invited to cross the straits was Musa; whose General, Tarik, landed with five thousand men at a place since called Gibraltar, corrupted from Jabal-Tarik, 'the mountain of Tarik.' Despising so small a number, Roderic contented himself with sending against him Edecon,—according to others Theodomir,—one of his lieutenants, who was beaten and obliged to flee; but Tarik had obtained reinforcements, and besides was in correspondence with Julian and some other traitors, among whom was also the son of the last king, Vitiza; but the battle, in which the king was present in person, and which had almost been won, was lost as soon as the traitors passed over to the side of the enemy. The words of A'bdulhakam, p. 114 (Weil, p. 523), are as follows:—"When Tarik landed, troops from Cordova met him, who had learnt that he had but few men with him. After a hard fight they were, however, beaten

back and pursued by Tarik as far as Cordova. When Loderik heard this, he started from Toledo, and both armies met in a place called Shiduna [Sidonia, afterwards called Xeres, two leagues from Cadiz], in a valley at present named the valley Umm Hakim. There a sanguinary engagement took place, until God, whose name be exalted! killed Loderik and his people." Further on (p. 115) the same author writes:—"Some relate that Loderik marched against Tarik when he was yet on the mountain, and when Loderik approached, Tarik met him. Loderik was at that time on a royal throne borne by two mules; he was covered by a canopy; on his head he wore a crown, and on his body other ornaments, as is used with kings. Tarik, with all his companions, marched against him on foot,—there was not a rider among them; they fought from sunrise till sunset, and thought it was their destruction. But God killed Loderik and his people, and granted the victory to the Musalmans. In the West there never was such a murderous battle, and the Musalmans did not lift up the sword from them (from the Christians) for three days. Then they started to Cordova." Ṭabari (as now accessible to us) has only the following few lines on the conquest of Spain:—"In the year 92 (A.D. 710-11) Tarik Ebn Zayyad, a manumitted slave of Musa Ebn Nusseir, undertook an expedition to Andalus with 12,000 men, and met the king of Andalus. He was a man of the inhabitants of Issbahan [Spain], and these

were the kings of the foreigners of Andalus. Idrimiyuk sat on the royal throne, had a crown on his head, and a tent with all sorts of decorations. A sanguinary battle took place, until God killed [Roderick]. Andalus was conquered yet in the year 92" [A.D. 710-11].

The victor rapidly pursued his successes. The town of Esiga (spelt Ecija by Weil), which had afforded a momentary asylum to the fugitives, was besieged, taken by assault, and all its inhabitants massacred. A detachment of seven hundred cavalry surprised Cordova. The Arab army reached the walls of Toledo, which was at that time the capital of the kingdom, and now surrendered to the enemy on honourable conditions. Seven churches were retained for Christian worship, and in general the Arabs showed themselves to be magnanimous conquerors; their generosity perhaps facilitated the conquest of Spain, which they completed in less than one year, and to accomplish which it had taken the Romans and the Carthaginians two centuries.

Count Julian and the sons of Vitiza insisted on the realization of the secret treaties they had made with the Arabs; but the latter, being no longer in want of traitors, among whose number even the archbishop of Sevilla was counted, replied to their solicitations by the manifestation of the most perfect scorn. Those Moslems had a more just feeling of true honour than some modern governments, which have not blushed

to overwhelm with favours men who have broken their oaths in face of the whole of Europe, by abandoning their standards on the eve of battle.

Tarik had acquired great glory, of which Musa, his chief, became jealous. Disgrace, and even ignominious punishment, was the price for the services which he had rendered. Musa passed into Spain A.H. 93 (A.D. 711-12) and subjugated Sevilla, with Merida, which still resisted. The conditions of the surrender were that the churches should be equally divided between the two religions.

But a great many Catholics had fled to the mountains, carrying with them the bones of their saints. Theodomir, a warrior celebrated by former victories, became their leader, attacked the Arabs, obtained successes, and signed a treaty which allowed to his companions in arms a kind of independence by means of a slight tribute. Thus the first nucleus of opposition was formed, which several centuries afterwards overthrew the power of the Arabs.

Musa, having become master of Spain, wished to penetrate into France, but was recalled to Damascus. He left Spain A.H. 95 (A.D. 713-14), carrying with himself all the booty, and a great number of prisoners. As he performed the journey from Ceuta to Damascus by land, partly because he had to arrange many things in Africa, partly because ships were wanting to transport him, with the army, the slaves, and the prisoners, whose

number amounted to nearly thirty thousand persons, one year elapsed before he reached Damascus. During his journey he was everywhere received like a conqueror, and the Arabs who heard of his arrival crowded around him to behold the Gothic prisoners and Andalusian curiosities which Musa brought in thirty carriages and on the backs of innumerable camels. He had not yet arrived in Damascus when Wolyd died, and the Khalif Suleymán, his successor, condemned Musa, who soon afterwards died in misery, to a fine of one hundred thousand dinárs. Thus another injustice avenged that of which this old general had himself become culpable towards Tarik his lieutenant.

Rivalry between the Ommiades and the Abbasides.

Abdula'ziz, the son of Musa, had retained the government of Spain. His marriage with Egilona, the wife—but according to A'bdulhakam the daughter—of Roderic, irritated the Christians and the Moslems, and he was assassinated. Ayub Ebn Ḥabib, his successor, was after six months followed by Al-Horr, and then by Al-Samah, who crossed the Pyrenees and conquered the French provinces which obeyed the Gothic monarchs. The banners of the Moslems were erected on the coasts of the Gulf of Lyons, on the walls of Narbonne, of Nimes, of Caracassonne, and of Béziers. Afterwards the Arabs advanced as far as the plains of Tours. Perhaps the whole of Europe would have been subjugated had not

Charles Martel gained a great victory over them near the last mentioned town (Ramadan A.H. 114, October A.D. 732). The historians of those times have recorded that three hundred and fifteen thousand Moslems were slain in that battle. This number is certainly much exaggerated; the victory of the French was, however, complete and decisive.

In the East the rival dynasties of Ommia and of A'bbás disputed for the supremacy, with arms in hand, from the Indus to the Euphrates. The quarrel was settled on the banks of the Zeb, and the Abbasides were victorious.

A'bdurrahmán, an Ommiade prince, took refuge in Spain, a portion whereof declared itself in his favour. The antagonists fought, the Ommiades were conquerors in their turn, and A'bdurrahmán founded the kingdom of Cordova.

A.H. 138 (A.D. 755).

At this epoch a very remarkable period begins in modern history, and we are astonished at the spirit of gallantry manifested, at the magnificence displayed, and at the progress made in the arts and sciences, by the Arabs of Spain.

A'bdurrahmán, who was indebted to his sword for his sceptre, constantly occupied himself with the public welfare. He encouraged the sciences and the arts, protected agriculture and commerce, and treated Christians

with meekness. The country passed rapidly from a state of poverty and desolation to one of comfort and prosperity: such is the influence of a good government! Impartial justice and truly paternal care suffice in a state of peace, which can often be very easily maintained, to raise a nation to a high degree of splendour. Then, how culpable are the men who, placed at the head of affairs, manifest violence and injustice, and sacrifice to their little passions and to their private hatred the dearest interests of a country,—tranquillity, independence, and liberty!

Prosperity and reverses of the Ommiades.

A.H. 171-238 (A.D. 788-852).

The kingdom of Cordova became flourishing, and a few disastrous wars undertaken against the Christians who had found a refuge in Asturia did not interrupt its constantly increasing prosperity. A'bdurrahmán died, justly regretted, after a reign of thirty years. His son Hesham showed himself worthy to tread in his father's steps. He loved the arts especially, was himself a skilful architect, and a bold stone bridge was thrown across the Guadalaquivir, according to the plan which he had drawn. A'bdurrahmán II., his grandson, embellished Cordova with several remarkable monuments. To this prince the establishment of a library containing six hundred thousand volumes is attributed, but the reader will be inclined to reduce this number

greatly when he considers that printing was not yet invented at that time.

A.H. 238-350 (A.D. 852-961).

A century afterwards, the pomp and magnificence of the reign of A'bdurrahmán III. astonish the imagination. That prince kept six thousand three hundred wives, concubines, and black eunuchs, and never went out without being accompanied by twelve thousand horsemen whose girdles and swords were covered with gold. The palace and the gardens of Azzahrá, constructed in honour of his favourite wife, cost immense sums of money, and around the royal palace and grounds a town sprang quickly into being, which was situated between the foot of the mountain and the plain that extends to Cordova, at the distance of about three miles from the furthest limits of the city. Ebn Khallekan (Gayangos, i. 233), in his biography of illustrious men, under the article "Almutammed Ebn Abbád, king of Sevilla," has given the dimensions of this wonderful city; his words are as follows:—"The city Azzahrá was one of the most splendid, most renowned, and magnificent structures ever raised by man. It stood at a distance of four miles and one-third from Cordova; it measured 2700 cubits in length from east to west, and the breadth from north to south was 1700 cubits. The number of columns in the building amounted to 4300, and that of the doors to 15,000. In the raising of this

sumptuous building Annáçir lavished countless treasures, since it is reported that the revenues of Andalus in the days of this Sultán amounted to 5,400,800 gold dinárs collected from taxes, besides 765,000 derived from markets, exclusive also of the fifth of the spoils taken from the enemy[14], and the capitation-tax levied on Christians and Jews living in the Moslem dominions, the amount of which is said to have equalled all the rest. Of this income Annáçir appropriated one-third to the payment of the army, one-third was deposited in the royal coffers to cover the expenses of his household, and the remainder was spent yearly in the construction of Azzahrá and such other buildings as were erected under his reign." At present no vestige of Azzahrá exists. It will, no doubt, be believed that the life of A'bdurrahmán was only a long series of enjoyments and pleasures; but after the death of that prince the following writing was found:—"It is more than fifty years that I have reigned, in victory or peace. Being beloved by my subjects, feared by my enemies, respected by my allies; having honours, pleasures, riches, and power, I possessed everything which may contribute to the happiness of man here below. I have carefully counted the days during which I was really and perfectly happy; their number does not exceed fourteen."

At that time the royal city of Cordova contained 13,000 houses for the common people, besides half that number for government officials, six hundred mosques,

and nine hundred baths. The extent of the city is said to have been twenty-four miles long and two broad. Ibnu Bashkuwál says that "the palace of the king was an ancient building inhabited in former days by the infidel Sultáns who had ruled over the country. The interior of it (as well as the adjoining buildings) was full of primeval constructions, and wonderful remains of the Greeks, Romans, and Goths, and the interior apartments were so constructed as to dazzle with the beauty of their ornaments the eyes of the beholders. This palace the Khalifs of the house of Merwán chose for their residence, and tried to ornament and embellish by all possible means, adding new rooms and filling them with elegant rarities. But this was not the only improvement which the sovereigns of that family made in their capital, for they left in Cordova everywhere traces of their wise administration, planted delightful gardens, supplied the city with water brought from the distant mountains, and furnished the capital with abundance of provisions of all sorts. The water thus brought from the mountains was conveyed to this palace, and thence distributed into every corner and quarter of the city by means of leaden pipes, from which it flowed into basins of different shapes, made of the purest gold, the finest silver, or plated brass, as well as into vast lakes, curious tanks, amazing reservoirs and fountains of Grecian marble beautifully carved. In this place, too, was an astonishing *jet d'eau* which

raised the water to a considerable height, and the like of which was nowhere to be seen in the East or West." Eighty large towns and three hundred less considerable ones acknowledged the authority of the Khalif. Twelve thousand villages covered the banks of the Boetis, which assumed the name of Guadalaquivir[15]; and agriculture, with the products of the mines, enriched that happy country.

A.H. 350-366 (A.D. 961-976).

Ḥakem, the successor of A'bdurraḥmán III., loved the sciences, founded the university of Cordova, and collected a library of great magnitude,—said to have consisted of 400,000 volumes, which is scarcely credible. He was just and virtuous, but nevertheless abandoned in one single instance the principles which habitually guided him, although he made good his fault nobly. A poor woman had a small field which she had inherited from her ancestors. She refused to sell it, but was violently deprived of it for the purpose of enlarging the garden of the prince. The Kaḍi wished to remedy this injustice, took a bag, mounted a donkey, and presented himself before the Khalif, who was sitting in a magnificent kiosk built on the usurped territory. He first asked for permission to fill his bag with earth, and then requested the Khalif to aid him in putting the bag on the ass. Although Ḥakem was greatly astonished at this singular demand,

he complied with the desire of the Kadi, but could not avoid making a remark on the excessive load. "Prince," said Bakir,—the name of that courageous magistrate deserves to be remembered,—"this bag contains but a small portion of the ground of which thou hast unjustly deprived a poor woman. Then how wilt thou be able, on the day of judgment, to suffer the pain, which will be in proportion to the extent of the field which thou hast usurped?"[16] Far from taking offence at this bold reprimand, Hakem acknowledged his error, and restored the field with all the buildings he had erected on it.

A.H. 366-399 (A.D. 976-1009).

This prince left the throne to Hishám Almuyad Billah, a son of immature age, during whose minority, which was troubled by intestine war, the kingdom was governed by the celebrated Vizier Muhammad Abenamir, surnamed Almançûr ('the victorious') on account of his bravery. In six consecutive campaigns Abenamir covered himself with glory, but the Christians made him lose at Medina-Cœli his reputation of being invincible, and he was unwilling to survive his defeat. From that epoch the power of the Arabs continued to decline in Spain, and was at last restricted to the limits of the kingdom of Granada only.

As the events which elapsed during nearly three

centuries after those briefly sketched in the preceding pages are not very brilliant, and mark no peculiar epoch in the history of civilization, it will perhaps be best to pass to the last episode of the Arab power in Spain.

At a time when the Moslems stood most in need of union, grievous dissensions broke out among them, and discord has often been the harbinger of the fall of kingdoms. Thus the Jews at Jerusalem, and the Greeks at Constantinople during the Lower Empire, were fighting amongst themselves, whilst Titus stood under the walls of the former, and Muḥammad II. under those of the latter city.

A'bdullah the son of Hussein revolted against his own father, and the blood of Moslems flowed in the quarrels of the two princes, during which the Christians took possession of several important towns. Muḥammad Elzagal stabbed his own brother A'bdul Hussein, usurped the throne, and abdicated soon afterwards. A'bdullah, covered with wounds, surrendered Loya by capitulation, and retired to Granada, where his authority was acknowledged.

During the tempestuous reign of this monarch a remarkable catastrophe took place, which has been seized upon by romance-writers and poets. The Zegris, those knights of romance, who by their deadly feuds with the Abencerrages (Beni Serraj) hastened the fall of Granada and the ruin of their country, were certain powerful families, who, after the taking of Saragossa

and other cities in Arragon (Thagar), sought refuge in other Muhammadan states, and settled for the most part in Granada, where they were known by the patronymic of Zegris (Thagrioon). These two powerful families showed their enmity on every occasion, but the Abencerrages carried their point in magnificence and bravery; and Hamed, one of them, enjoyed the whole confidence of the sovereign. But that credulous monarch lent an ear to the calumnies of one of the Zegris, who made him believe that the Abencerrages were meditating a conspiracy against his person; he also accused Hamed of maintaining a criminal correspondence with the queen, and affirmed that he had surprised them together in the most familiar position. Jealousy and fear made A'bdullah unjust, perfidious, and cruel. He swore to destroy the Abencerrages, invited them to his palace, and as they entered the Court of the Lions they were murdered by the Zegris, and in this manner thirty-six of the Abencerrages perished. The rumour of this horrible massacre soon spread in the city of Granada, everybody ran to arms, and the streets were inundated with blood. At last, however, calm was restored; the king declared his motives for having acted thus, and announced that the queen would be burnt alive after the expiration of thirty days, unless she could produce four champions to fight four of her accusers and come off victorious. This was, no doubt, a strange way of ascertaining the culpability or in-

nocence of a person, but such was the usage of the times, and, absurd as it is, it was adopted from the Arabs and often practised by Christians.

The queen entrusted her defence to the swords of Christians. She wrote to Shacon, the lord of Carthagena, named him her champion, and invited him to bring three of his valiant friends. On the appointed day Shacon, the duke of Arcos, the duke of Aguilar, and Don Ferdinand of Cordova presented themselves, armed according to the manner of the Arabs. The combat was fatal to the Zegris; one of them, when expiring, confessed his crime and the innocence of the queen. A'bdullah manifested the liveliest regret, but could not calm the resentment of the princess, who retired to Africa, and the indignant Abencerrages also left Spain.

This tragic event likewise contributed to enfeeble the Moslems, who waged an unfortunate war against king Ferdinand. All their strongholds had, one after another, fallen into the hands of the enemy, who was determined to bring about their ruin, and who had made the greatest sacrifices to attain this object. Isabella, who enjoyed in Castile an authority almost independent of her husband the king, had procured troops and money; so that, strictly speaking, the flourishing kingdom of Granada no longer existed. Its limits extended but a few leagues around the capital, which Ferdinand came to besiege with an army of sixty thousand men, animated by success, and still more encouraged by the presence

of the queen. In the beginning the siege was very murderous, but was afterwards transformed into merely a blockade of the place. The camp of the Christians consisted of huts covered with straw and reeds. The queen, who was in the habit of reading during a portion of the night, inadvertently set it on fire. In lieu of the camp reduced to ashes, a town, which received the name of "Santa Fé," was built to lodge the army. Then the inhabitants of Granada saw that there was no hope left. A'bdullah signed a capitulation and retired to Africa. When his mother perceived him shedding tears she said, "Thou art right to weep like a woman for the loss of a kingdom, in the defence of which thou knewest not how to die like a man." Thus at all times kings have been seen sacrificing thousands of lives to sustain their cause, but carefully avoiding risking their own in battle.

On the 2nd January 1492 (A.H. 897) Ferdinand and Isabella entered Granada, the last bulwark of the Arabs in Spain. This was a great and memorable event, but the monarch and his spouse soon tarnished its glory, by violating the terms of capitulation, according to which the free exercise of their religion had been granted to the conquered. The unfortunate inhabitants were cruelly persecuted because they refused to become converts to Christianity. This ill-treatment caused them to revolt, and it took two years to subjugate them. Some left the country, others remained in Spain and preferred to suffer a thousand vexations rather than to

renounce the Koran; others again embraced Christianity to obtain peace. But what confidence could be placed in such conversions? And nothing can ever excuse those who use either overt or covert violence to propagate the Christian religion, because they act against the intentions and the formal precepts of its Founder.

The Spanish Arabs were extremely fond of learning, and in the three last chapters of the second book of the *History of the Muhammadan Dynasties in Spain*, by Pascual de Gayangos, the state of science and literature in Andalus is detailed in the words of Makarri, the original Arab author of that book; and many once celebrated authors are mentioned of whom not only the works, but the very names, have since perished; nevertheless the following notice of four physicians, condensed from Appendix A of the same work, will prove of some interest.

I. Abu Merwán A'bdul Malek Ebn Zohr was appointed chief physician to A'bdul Múmen when he became Khalif. The latter was once in want of a slight purgative, but being unwilling to take any of the draughts used for that purpose, he consulted his doctor. Ebn Zohr went to a vine in his orchard and dug a deep trench round it; he then irrigated it with water in which he had previously diluted a strong purgative, so that the trunk and the branches of the vine imbibed that substance, and the fruit became also

impregnated with it. By that time a fever had attacked A'bdul Múmen, when Ebn Zohr brought him a bunch of those grapes, and prescribed that he should eat them. A'bdul Múmen complied, soon recovered his health, was informed of the expedient resorted to, and his affection for Ebn Zohr increased greatly. This physician once met an individual suffering from dropsy, his abdomen was much swollen, his face had turned yellow, and he was in continual agony. Ebn Zohr went into his house, and having attentively observed the symptoms of the disease, he was going to give his opinion, but observing an old pitcher from which the sick man generally drank water, he said, "I must needs have that pitcher broken, that I may see what it contains." The patient replied, "By Allah! I have no other, but it shall be broken;" accordingly the pitcher was dashed against the wall, and, to the astonishment of all the bystanders, a large toad was discovered at the bottom of it, having for a considerable time lived and grown in the pitcher. Ebn Zohr then said to the patient, "Thou art cured, O man! I need not prescribe for thee; thou hast been all this time drinking poisoned water." The man, of course, recovered. Abu Merwán A'bdul Malek Ebn Zohr died at Seville A.H. 557 (A.D. 1161-2), and the works written by him are as follows:—1, The Leveller of the Difficulties in the art of applying Medicaments and preserving Health; 2, The Book of Aliments; 3, The Book of

Ornament (on the remedies used as purgatives); 4, An Essay on Diseases in general; 5, An Epistle on Leprosy and the Morphew; 6, The Book of Warnings (or the first things to be attended to in the cure of diseases).

II. Abu Bakr Ebn Zohr, the son of the above physician, succeeded him also in his appointment, and passed, after the demise of the Sultan, into the service of his son, and then into that of his grandson. He died A.H. 596 (A.D. 1200). Abu Bakr Ebn Zohr was extremely sagacious in the discovery of diseases, cautious and expert in the application of medicine, and an excellent regulator of health.

III. Abu Bakr Muḥammad Ebn Yahya, better known under the surname of Ebn Bajeh the Andalusian, was the phœnix of his time in philosophical science; he consecrated his leisure also to geometry, astronomy, and metaphysics. Among the pupils of Ebn Bajeh the most celebrated was the Kaḍi Abul Walid Muḥammad Ebn Roshed, whose biography, taken from Montferrier's *Dictionnaire des Sciences Mathématiques*, will be inserted the last in the present chapter. Ebn Bajeh died young, at the city of Faris, where he was buried. He wrote the following works:—1, A Commentary on the treatise on Sound by Aristotle; 2, An Essay on part of the treatise on Meteors by the same; 3, An Essay on the Book of Generation and Corruption by the same; 4, An Essay on the last

chapter of the Book on Animals by the same; 5, An Essay on part of the Book of Plants by the same; 6, An Essay on Natural Propensities and their signs; 7, An Epistle entitled "Fare thee well;" 8, A short Essay in continuation of the same subject; 9, A Treatise on Human Reason; 10, An Essay on the Resisting Power, divided into several books; 11, A Treatise on the regulation of the individual; 12, A Treatise on the Soul, intended as a Study on the Book of the Fabric of the Intellect (or Psychology) by Abu Naçr; 13, A Few Chapters on the Public Regulations and Arrangements of a City, and the State of the Individual, in which he introduced some excellent remarks on geometry and astronomy; 14, An Epistle addressed by him to his friend Abu Jáfer after his arrival in Cairo; 15, Philosophical Lucubrations intended as answers to the questions proposed on the science of Geometry by Ebn Seyid the geometrician; 16, A Discourse upon part of the Treatise on the properties of Simples used as Medicaments by Galenus; 17, The Book of the Two Experiments upon the Medicaments of Ebn Wafid; 18, An Epitome of the Book of Intestines, a work by Ar-razi; 19, A Discourse on the Extent of Human Nature; 20, A Discourse on those things in which there resides a power against the acting mind; 21, A Discourse on the Noun and the Named; 22, A Discourse on Demonstrations; 23, The Book of Elements; 24, An Inquiry into the Powers of Resist-

ance inherent in our Mind; 25, The Book of the Temperaments and Habits.

IV. Abu Daud Suleymán Ebn Hossan, known by the surname of Ebn Joljol, was an eminent physician. He lived in the times of Hisham Almiyad-Billah, whose physician he was. He wrote a commentary on the book of Dioscorides Anazarbæus, wherein he described every one of the simples of which the Greek physician had given the names, explaining at the same time with much clearness and precision their qualities and use as medicaments. In the preface to this work Ebn Joljol says, "The books of Dioscorides were first translated into Arabic by Estefan, son of Basil, the interpreter, who completed his task at Baghdad during the reign of the Abbaside Khalif Almotawakkel. Honeyn the son of Essahák then corrected the version made by Estefan, and purged it of the errors it contained. Having afterwards substituted Arabic for such of the Greek names as had been suffered to remain for want of the translator knowing their equivalents in Arabic, he gave his work to the public. Such names of simples, however, as Honeyn found without an equivalent in Arabic, he left in the Greek language, trusting that God would send after him people acquainted with their properties, and who would give them names: since it is an ascertained fact that simples receive their nomenclature either through the common consent of the people of a country, who have

observed their properties and the effects they produce, or by derivation, or otherwise, but always by a sort of mutual consent." "This version of Estefan," continues Ebn Joljol, "such as it was, with some of the simples having names in Arabic, and others not, was brought to Andalus; the learned of this country, as well as of the East, studying by it until the reign of A'bdurrahmán Annaçir, Sultân of Andalus, when an ambassador from Armanius, Emperor of Constantinople [Romanus, who reigned A.D. 948-963], came to Cordova with letters and presents from his master. This event took place, if I am not mistaken, A.H. 337 (A.D. 948-9). There was, among other valuable things sent by Armanius, a copy of Dioscorides' work beautifully written in the old Greek language, the same that the ancient Ionians wrote and spoke, and having, besides, drawings of plants beautifully executed and illuminated with the most vivid colours. The emperor of Constantinople sent at the same time a copy of the work of the historian Orosius, an excellent history of the Romans, in which were described the events of ancient times, and the actions of former kings, and many other curious and important events. In a letter accompanying the presents, the Emperor Armanius, alluding to this copy of Dioscorides, observed to Annaçir, 'The books of Dioscorides ought to be translated into Arabic by a man well versed in the Greek language, and acquainted also with the properties of simples;

without this requisite the merits of this wonderful composition will never be duly appreciated and brought to light.' He added, 'Unless thou find, O king! in thy states a man properly qualified to undertake this version, the advantages and merits of these books will for ever remain in obscurity. As to the books of Orosius, being written in Latin, I have no doubt but that thou wilt find in thy states a man who can read that language, and translate the work into Arabic for thy own use.' It happened, however, that there was no Christian, among those who resided at Cordova at the time, who could read and understand the language of the ancient Greeks, so that the work of Dioscorides remained untranslated in Annaçir's library. Meanwhile the learned of this country made use of Estefan's translation, which, as I have remarked elsewhere, had been brought from Baghdád. At last, when Annaçir, some years after this event, returned the embassy of Armanius, he desired that monarch to send him a man well learned in the language and literature of the ancient Greeks, who should teach them in Cordova to some of Annaçir's slaves, and thereby enable them to make a suitable Arabic version. This request was readily granted by Armanius, who despatched to Cordova a monk named Nicolaus, who arrived in Cordova A.H. 340 (A.D. 951-2). There were at that time in the capital several eminent physicians, many of the greatest learning, who burned with the desire to acquire a

perfect knowledge of the books of Dioscorides, and dive into the sense of the passages that remained still obscure and unexplained in the translation, as well as to find the equivalent names of the plants in Arabic. Among those who most eagerly desired an opportunity to get a sight of that precious work, and who, owing to the esteem in which they were held by the Khalif, could at any time go to the palace and enter the library, was Hasdáy Ebn Bashrút, the Israelite. With this man the monk Nicolaus formed an intimate acquaintance, and in course of time explained to him all the obscure passages in the books of Dioscorides. Hasdáy was likewise the first physician who made in Cordova the antidote called *al fárúk*, and determined the proper plants that ought to enter into its composition. Nor was Hasdáy the only physician who worked on the books of Dioscorides; other eminent men laboured sedulously to restore the correct reading of the names of plants and to find their equivalents in Arabic. Of this number was Muḥammad, known by the surname Ash-shajjár ('the botanist'), several others, and also Abú A'bdullah As-Çaḳaly ('the Sicilian'), who knew and spoke Greek well, and was besides an eminent physician and botanist. All the just mentioned individuals were contemporaries of the monk Nicolaus, and lived in the days of the Khalif Almostançer in Cordova, where I knew them in my youth, and profited by their lessons and experience. I also saw and knew the

monk Nicolaus, who died in the first year of the reign of Almostançer-Billah Alhakem. However, by the efforts of those illustrious physicians, the translation of the books of Dioscorides was purged of the manifold errors with which it swarmed, the obscure passages were made clear, all the names of plants and simples were satisfactorily explained, with the exception of a few, which did not exceed ten in number, and the people of Cordova, the capital of Andalus, could at last read the very words of the Greek naturalist translated into their own language, and know the equivalent terms for all and every one of the simples described in his works." Ebn Joljol adds, "Having from my earliest youth shown the greatest inclination to become well acquainted with the *Materia Medica* (by Dioscorides), which is the foundation of the knowledge of compound medicaments, I was led to investigate the subject with the utmost care and attention. This I did, until God, in his infinite bounty, was pleased to grant me the means of attaining the object of my wishes, and accomplishing my purpose, which was to preserve the names and description of many medicaments which I feared would be forgotten, and the advantages resulting from them lost to mankind: since God has created the means of restoring health to the body of man by disseminating them in the plants which cover the surface of the earth, in the quadrupeds that move on it, in the fishes that swim in the

water, and in the birds that fly through the air, and in the mineral substances that lie hidden in the bowels of the earth; and by permitting that all these things should be appropriated to the cure of diseases, as a proof of his extreme mercy and kindness."

Ebn Joljol left the following works:—1, A commentary on the names of the simples used in medicine which occur in the books of Dioscorides, written at Cordova A.H. 372 (A.D. 982); 2, Another work treating of those simples which may be used in medicine but are not mentioned in the books of Dioscorides; 3, A *Risaleh* entitled "Declaration of the errors committed by physicians in the cure of diseases;" 4, A bibliographical work dedicated to the Khalif Hishám, containing the lives of eminent physicians and philosophers born in Andalus, or who practised in that country.

One of the last scholars who adorned the period of Arab dominion in Spain was Abul Walid Muḥammad Ebn Muḥammad Ebn Roshed, known in Europe by the name of Averroes. He flourished during the twelfth century, and taught philosophy and medicine at Cordova, sciences which appeared at that time inseparable from each other, and those who practised them were considered by the common people to possess almost supernatural knowledge. The epoch of Averroes is that of the decadence of political dominion of the Arabs in Spain, an epoch during which that great nation

lost also the taste for sciences which it had brought to Europe. To judge from the prodigious number of his works, Averroes, who was, besides, the Emám and Káḍi of Cordova, must have led an exceedingly laborious life. He is the author of the Arabic version of Aristotle, but it is not the first translation which existed in that language, as some of his biographers affirm, since that labour had been accomplished at Baghdád already during the brilliant khalifate of Mámún. We possess various manuscripts of Averroes which contain treatises of physics and of pure mathematics, of astronomy and of astrology; for, in spite of their encyclopædical knowledge, the celebrated men of those ancient times were not above all the popular errors. At that time science was surrounded by a kind of superstitious respect, to which Averroes, like many others, is indebted for the greatest portion of his renown, and for the halo of glory which surrounds his name. The majority of his works have been translated into Hebrew, and some of them are to be found in the celebrated library of Rossi. The national library of Paris possesses as many as twenty-seven commentaries of this scholar on Aristotle, and various smaller mathematical treatises. Gayangos (I. Appendix A, pp. xxi.-xxiii.) gives the titles of forty-two works of this author. Averroes died A.H. 595 (A.D. 1198), but the precise time of his birth cannot be ascertained.

From what has preceded, it may be seen that the

epoch which goes in Europe by the name of the Dark Ages, and was there really an epoch of ignorance and servitude, embraces the most brilliant period of the history of the Arabs. When those European knights, who were as brave as they were ignorant, followed millions of armed pilgrims to the East, who were led by religious enthusiasm, they imagined that they were going to fight barbarians scarcely worthy to fall under their noble swords. But they had to deal with a nation which was as valiant as it was enlightened, and Arab civilization triumphed over that formidable attack. The first crusade under Peter the Hermit was a miserable failure, resulting in his flight to Constantinople, and in the extermination of the whole army. The succeeding ones were better organized, and established among much rapine and bloodshed the precarious tenure of several fortified places and of Jerusalem, which they held for nearly a century, and then lost the footing they had obtained in the Holy Land, and had been able to retain only by means of a constant supply of soldiers, treasure, and victuals, from England, France, Germany, Hungary, and Italy. The Christians brought, however, back from the East ideas that germinated in Europe, and afterwards concurred in the intellectual revival. This was the best result of the Crusades, and it bears most eloquent testimony to the providential direction which social history underwent in Europe from that time.

CHAPTER III.

The revival of learning in Europe.

It seems to be a law of nature that in the same manner as certain dynasties cease after a time to produce great men, so also nations become effete, lose their energies, and do not recover them until they have become intermixed with others. This circumstance, connected with the great luxury, effeminacy, and contempt of learning in the Western Empire, was one of the many causes of its fall, which was completed by the irruptions and devastations of the Huns, Goths, and other barbarian hordes. The Latin language, however, and the communication that all parts of Europe kept up with the see of Rome, prevented the total extinction of the spark of learning which was still feebly glimmering, although on the other hand extraordinary delusions and superstitions dimmed even that, nor was there any security of life and property where bloodshed and war raged; and commerce, one of the great instruments of civilization, could not develop itself, but was cramped within the narrowest possible limits.

The chaos of barbarism, strife, poverty, and confusion, however, gradually disappeared in Europe when the inundations of war ceased, and regular governments became firmly established in various countries. Then monarchs bethought themselves of promoting civilization. The revival of learning began among Euro-

peans in the tenth century after Christ, and is chiefly attributed to the writings of Arabian doctors and philosophers, and to the schools which they founded in several parts of Spain and Italy. These seats of learning were frequented even in the twelfth century by students from various parts of Europe, who disseminated the knowledge thus acquired when they returned to their own countries; and at that time many Arabic books were translated into Latin, which facilitated the progress of science. Also great men and sovereigns patronized learning, such as Charlemagne, Pope Sylvester II., and others. Frederick II., the Emperor of Germany, caused the *Almageste* of Ptolemy to be translated; and Alphonso X., king of Castile, ordered astronomical tables to be drawn up, and for this purpose he assembled many Arab, Jew, and Christian astronomers at Toledo, such as Essahák Ebn Sayd, Alkabith, Aben Ragel, Aben Musa, Muḥammad, &c. Alphonso was himself an able astronomer, and to this day the chamber where he made his observations is shown at Segovia in the Alcasar (القصر) or palace.

Gradually the ardour in the pursuit of learning increased more and more. The university of Paris became famous in the eleventh century, when Abelard lectured, who numbered twenty cardinals and fifty bishops among his hearers; and A.D. 1201 there were three thousand students in Oxford. Bologna, however, may claim a higher antiquity than either of the two just mentioned seats of learning; it was chiefly remarkable as a

school of Roman jurisprudence, and enjoyed the protection of Frederick Barbarossa, who allowed the scholars to be tried in civil suits by their own judges. This exemption from the ordinary tribunals, and even from those of the Church, was naturally coveted by other academies; it was granted to the university of Paris by its earliest charter from Philip Augustus, and to Oxford by John. From this time the golden age of universities commenced, and it is hard to say whether they were favoured most by their sovereigns or by the see of Rome. The numbers of the students mentioned appear to be exaggerated, especially for Oxford, which is said to have counted thirty thousand scholars in the time of Henry III.[17] The scholastic philosophy of Aristotle received through the Arabs, but afterwards also translated from the original, constituted the chief point of attraction in these seats of learning; it has, however, been exploded centuries ago, and the works treating on it are quietly sleeping in our libraries. Even the vernaculars of those times are forgotten, and none except philologers care at present for the Langue d'Oil, the Langue d'Oc, the Norman, or the Anglo-Saxon tongue, the tales, the romances, the fabliaux, and other productions of the once celebrated troubadours have become mere matters of curiosity of little value. On the other hand, Dante Alighieri may be called the founder of the Italian language, and Petrarch the Ovid of Italy. The English language began to develop itself somewhat later, because

the Norman conquest greatly depressed the natives of that country, and even after the loss of Normandy the French idiom continued to be used in the higher classes till the year 1290.[18] The addition of Geoffrey Chaucer, who was born in 1328, to the just-mentioned two poets completes the triumvirate of great poets in the Middle Ages.

Inland commerce alone cannot much increase the wealth of nations; accordingly, even after internal security had been to some degree established in Europe, it flourished only when various countries had begun to trade with each other by sea, and the Atlantic, the Baltic, and the Mediterranean became the highways of it. In those times wool was the chief article of export from England, which was exchanged for the manufactures and linen of Flanders, France, and Germany, and for the silks of Italy. In the thirteenth century the invention of the mariner's compass, the discovery whereof is claimed by several nations, facilitated navigation, which became from that time more secure.

The progress of commerce, civilization, and learning naturally influenced the moral character of Europe for the better, but this amelioration it is impossible to trace out, as Hallam (*Europe during the Middle Ages*, ii. 435) truly remarks, "We cannot from any past experience indulge the pleasing vision of a constant and parallel relation between the moral and intellectual energies, the virtues and civilization of mankind. Nor is any prob-

lem connected with philosophical history more difficult than to compare the relative characters of different generations, especially if we include a large geographical surface in our estimate. Refinement has its evils, as well as barbarism; the virtues that elevate a nation in one century pass in the next to a different region; vice changes its form without losing its essence; the marked features of individual character stand out in relief from the surface of history, and mislead our judgment as to the general course of manners; while political revolutions and bad constitutions of government may always undermine or subvert the improvements to which more favourable circumstances have contributed." Therefore, in judging of the civilization of a whole continent, not single instances or localities, nor short periods of time, must be taken into account, but aggregate results. For by following an opposite course of proceeding, or a bias to detract from the merits of the present state of civilization, we might still adduce instances of barbarism, of oppression, and of superstition which may even now be pointed out in Europe, and might thus jump to the one-sided conclusion that it is still groaning in the bonds of ignorance and tyranny, and not constantly advancing in the path of civilization.

When two or more nations come into long and close contact with each other, it is a natural consequence that they will, to a certain extent, influence each other in many things; the stronger and more cultivated will not

only bestow its civilization and sciences, but will from its language engraft many words, and even whole locutions, on the weaker nation, the former being active and dative, the latter almost entirely passive and receptive. This influence we have at present every day before our eyes in the effect of British rule in India, in consequence whereof numberless terms of the arts, the sciences, and of law have found their way into the vernaculars, which have in their turn enriched the English language in Hindostan only with paltry words like *batta, bungalow, kit, nuddi,* &c. If, however, one language exerts its influence on another not orally only, but mostly in literary compositions, and if that influence has ceased to act for many centuries, but has nevertheless not become obliterated during the onward and incessant progress of civilization till the present time, and is abundantly proved by many words of that tongue surviving in formerly receptive but now dative languages, it is one sign among many that the tongue which had formerly manifested such a mighty power of influencing others, and of engrafting its own vocables on them, and has left such permanent traces of its superiority, must have enjoyed the advantage of high culture in the sciences most useful to man, who, whenever he is wise individually, or collectively as a nation, will most earnestly and zealously lay hold of them, and study them with all his might for the promotion of his moral and physical welfare. That the Arabic is such a language, and in some

measure also the Persian, is most abundantly proved by many scientific and other terms incorporated from them in to the European languages. The author of this Essay has taken the trouble to collect and alphabetically to arrange a list of such words, which is particularly rich in Arabic expressions still current in the Spanish language, because the Arabs inhabited that country for more than seven centuries; and the reader will find that all the weights and measures, as well as the words designating receptacles for water, whether for the purpose of drinking or for irrigation, at present in use in Spain, and to some extent also in Portugal, are all derived from Arabic.[19]

The arithmetical figures known by the name of "Arabic numbers" commenced to be generally known in Europe during the eleventh century, and they even now greatly resemble those used by the Moslems.

Arabic numbers.

In their original form :— ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩ ٠

In their Europeanized form :—1 2 3 4 5 6 7 8 9 0

From a comparison of these figures it appears that, for the sake of greater convenience in writing them, the Europeans have but slightly altered the forms, and have merely turned the positions of the numbers ٢ ٣ ٤ ٥ and ٧, have made additions to ٥ ٨ and to ٠, which are now 5, 8, and 0, and have left ١ and ٩ nearly unchanged. The general belief is that these figures are originally Arabic, and have been received as such from the Arabs

by Europe; some think that the word *Hindiseh*, هندسه often used to designate the science of numbers among the Arabs, has nothing to do with Hind or India, but is derived from the Persian *Andazah*, اندازه measure; but in the present state of knowledge there can be no doubt that the Arabs learnt these signs from the Hindus. The figures from "one" to "nine" are the abridged forms of the initial letters of the names of these numbers, and "zero" is the initial of the Sanskrit word शून्य, *shunya*[20], in ancient Sanskrit characters.

Algebra, which is derived from جبر *jaber*, 'to set, to strengthen,' with the article *al* prefixed, will also remain a perpetual monument to the former skill of the Arabs in that science. It is also customary to write on tablets strewed with *dust*, غبار *ghubár*, and therefore this name seems also to agree with the etymology of *abacus*, the Greek ἄβαξ, which may be derived from the Hebrew אבק *abak*, dust, and may be the origin of the الحساب الغباری *Alhisáb alghubary*, 'dust-calculation.'

The system of ancient French measures dates only from the time of Charlemagne, who substituted it for the Roman. The foot of Paris appears to be only an altered copy of that of the Arabs, which was divided into twelve inches, and the inch into twelve lines. Six feet formed a toise and a German Klafter, which is equivalent to the 'step,' قدم of the Arabs.

The Arabs excelled in many trades, but especially in the art of preparing leather, which was a great branch of industry at Cordova: hence a particularly nice leather is still named cordovan on the continent of Europe, and shoemakers are in the English law still called *cordwainers*. The celebrated Greek fire, which was extremely destructive, and the mode of preparing which is now lost, was well known to the Arabs, and some historians of the eleventh century who were present during the crusades in the Holy Land state that they used it against the Christians with fearful effect. The textile fabrics and embroidery, as well as the manufacture of arms, attained great celebrity and perfection among the Arabs, and everybody knows even in our times the cloth called damask, Damascus sabres, and damaskeened gun-barrels. The beautiful manuscripts of the Arabs gave a great impulse to caligraphy in Europe, and the illuminated missals, chronicles, and romances of those times are still highly prized. Carrier-pigeons were so extensively used in the time of Harún-Arrashid that they were in Europe called Bagadat. The game of chess was also brought to Europe by the Arabs, as the names of the figures testify, as well as the last move, which is called *mat*, "he died." Also several athletic and equestrian games are of Eastern origin, and cricket seems to be a variety of the play called *chugán* in Persia. Even architecture was greatly influenced by the Arabs, and some of their

best specimens are still extant in Portugal, Sicily, and Spain, in bridges, churches, palaces, and public buildings, but above all in the famous Alhambra, which is a monument of durability and elegance. The Arab style modified in some respects Gothic architecture during the Middle Ages, but did not form a particular order in the art. It is in part only a development of the same principle. Its indentations, its fantastic ornaments, and its elegant foliage by no means affected the Gothic system which the Arabs practised in Europe with their national genius. The Christians adopted it in some of their monumeuts, because at that time the Arabs were alone in possession of the sciences, and exercised in Europe so great a social influence that it extended itself to the arts also. There exists, however, in Europe still a kind of architecture called the Saracenic, *i.e.* Arab style.

With the useful arts and sciences the Europeans learnt also from the Arabs those which were useless and detrimental; such were astrology, alchemy, blood-revenge, magic, and trial by ordeal. Of the latter in its execution by fire, which is called *purgatio vulgaris*, or *judicium*,—in opposition to *bellum* or combat, which was the other form of purgation,—there exists, however, an example as early as the fourth century. Simplicius, the bishop of Autun, had, before his promotion to the episcopal chair, married a wife who loved him tenderly, and who, unwilling to quit him after his advance-

ment, continued to sleep in the same chamber with him. The sanctity of Simplicius suffered, at least in the voice of fame, by the constancy of his wife's affection; and it was rumoured about that the holy man, though a bishop, persisted, in opposition to the ecclesiastical canons, in tasting the sweets of matrimony; upon which his wife, in the presence of a great concourse of people, took a considerable quantity of burning coals, which she held in her clothes, and applied to her breasts, without the least hurt to her person or her garments, as the legend says; and her example being followed by her husband, with the like success, the silly multitude admired the miracle, and proclaimed the innocence of the loving pair. A similar trick was played by St. Brice in the 5th century.

In England an offender, on being arraigned and pleading not guilty, had it in his choice to put himself upon God and his country,—that is, upon the verdict of a jury,—or upon God alone, on which account it was called the judgment of God, it being presumed that God would deliver the innocent. The more popular kinds of *ordeal* were those of red-hot iron and water,—the former for freemen and people of fashion, and the latter for peasants. That by fire, as practised here, was that persons walked barefooted and blindfold over nine red-hot ploughshares; and if the accused man escaped unhurt he was acquitted, otherwise condemned. The ordeal by water was of two kinds, namely, either cold

or hot water. The former was when the suspected person put his arm or leg into scalding water and brought it out unhurt; and the latter, when his body was, contrary to the course of nature, not borne up by the water.[21]

Europe had to thank the Arabs for the follies of judiciary astrology, as well as for many important and really scientific works. Everything was considered to depend upon and to be ruled by the planets, and as late as the fifteenth century people were guided by astrology, until the true system of the world was discovered, which alone inflicted upon it the greatest blow. Even at present there are many remains of superstitions current among the unlettered classes of Europe, such as soothsaying, interpretations of dreams, discovering thieves by sorcery, &c., but they are everywhere discountenanced, and must soon disappear for ever.

As the other portions of Europe gradually emerged from darkness and ignorance, the Arabs of Spain became so weak and powerless that A.H. 933 (A.D. 1526) Charles V. ordered them to adopt the Spanish language, and from that time their existence as a nation finally ceased in Europe. Literature began likewise to decay among the Arabs, and it became customary with their authors to mix up all sorts of superstitions and unreliable information with their accounts. Thus Ḳazviny informs us in his *Á'jáyib-ulbul-*

dán, or "Wonders of Countries," that the table which Ṭarik found in Spain had originally belonged to king Solomon the son of David.[22] In the same work we are also informed, on the authority of A'bdullah Ben O'mru Ben Ala'áss, that between India and Sind there is a country called Kutám, which possesses a duck of brass, standing on columns of brass, and that on the tenth of the month Muḥarram the duck spreads its wings, and stretches out its beak, and water pours forth sufficient for their fields, cattle, and pastures till the next year; which might be a metaphor concerning the Monsoon rains, but is nevertheless too absurd even in that sense.[23] He gives also an account of a voyage from Boçrah to China on the authority of Salman the merchant, but the second portion of the narrative is so obscure that the places must be guessed at; in Lane's translation of the "Thousand and One Nights" there is, however, a very good explanation of this voyage given in the notes, as far as an explanation is possible. In the *Ajayib ulmukhlukát*, or "Wonders of created beings," Ḳazviny also tells us that in the island of Vák there is a tree on which human heads are growing, which shout *Vák Vák, alhamdu lillah ulkhallak!* "Váḳ, Váḳ, Praise be to God the Creator!" Such a fable would suit the Thousand and One Nights, but not a work professing to give historical and scientific information.

On the other hand the Sheikh Ebn Batuta gives in

his travels most truthful and reliable accounts of everything he saw; he went from Tangiers, his native city, to Hindostan, the sovereign of which country attached him to an embassy to the emperor of China, with which he did not proceed, on account of the long delays that took place, but he afterwards went to China on his own account. At Calicut, which was then a great fort, he waited three months to set sail for China," for there is only one season of the year in which the Sea of China is navigable. Nor then is the voyage undertaken except in vessels of the three following descriptions:—The greatest is called a *Junk* جنك, the middling size a *Zaw* زو, the smallest a *Kokam* ككم. The sails of these vessels are made of cane-reeds woven together like a mat, which when they put into port they leave standing in the wind. In some of these vessels there will be employed 1000 men—600 of them sailors, and 400 soldiers."[34] This was perfectly true in his time, but after the Portuguese established themselves in India, Chinese junks ceased to come.

Afterwards learning was so much neglected by Moslems that in peace and in war the works of many authors were totally lost by fire, by water, by damp, by the depredations of insects, and by carelessness. This remark applies especially to works translated from the Greek, which were of an instructive more than of

an amusing character. In later times even the biographies of the Greeks were altered or forgotten, so that at present scarcely more than a dozen remain. The lives of the following are recovered in the *Rauḍatuçafa* of Mirkhond and in the *Habyb ussear* of his son Khondemir; but I shall in my review follow the list of the former work, of which the latter is only an abridgment, containing scarcely any alterations:—

Solon the philosopher سولون حكيم.
Pythagoras the philosopher فيثاغورث حكيم.
Socrates the ascetic سقراط زاهد
Diogenes the cynic ديوجانس كلبي.
Plato the divine افلاطون الهي.
Aristotle the son of Nicomachùs ارسطاليس مقوماحص
Hippocrates the physician بقراط طبيب.
Homer the poet اوميرس شاعر
Zeno زينو بن طالون غورس
Ptolemy the philosopher بطلينوس حكيم
Thales Milesius ثاليس ملطي
Anaxagoras انكسا غورس
Xenocrates ذي قرطاس
Euclid اقليدس

There are three or four names more, which I could not identify with any given in Diogenes Laertius, although he details more than eighty biographies. I shall here make a comparison between the lives in the just mentioned work and the *Rauḍatuçafa*, but only take notice of the most remarkable coincidences and

discrepancies, as a detailed account would be long enough to fill a separate volume.

Solon the legislator is in the R. Ç. said to have been born in Athens, and to have been the grandfather of Plato's mother; but he was only her ancestor. D. L. states that he was born in Salamis, to which place he ordered his bones to be translated from Cyprus, where he died. Both works, however, mention that he left Athens; some of his sayings are also narrated, but are different in the two books.

Pythagoras is in the R. Ç. stated to have been a native of the city of Çúr, *i.e.* Tyre, which is possible, although according to D. L. Aristoxenus calls him a Tyrrhenian, because he was born in one of those islands taken by the Athenians from the Tyrrhenians. Both the R. S. and D. L. relate that he was fond of travelling, and went to Egypt, that he composed many books, and that on a certain occasion he escaped being burnt to death in the conflagration of the house in which he was, and that being attacked by his enemies forty of his disciples were killed, and that he shortly afterwards died.

Socrates is in the R. Ç. and in D. L. said to have written nothing, and to have been condemned to drink poison for despising the gods. It may also be remarked that according to the R. Ç. it was a king who condemned Socrates, which is of course wrong, as Athens was a republic. Also one of the disciples of Socrates

is mentioned in the R. Ç. by the name of Afryttoon, of whom we know nothing.

Diogenes is in the R. Ç. correctly endowed with the epithet "*Kalby*," the Arabic translation of "Cynic," to distinguish him from other persons of that name. His being visited by Alexander the Great is also given in the R. Ç., but, strangely enough, he is there stated to have been another Âlexander, and not the son of Philip, Filikús.

Plato.—The R. Ç. and D. L. agree that he was the founder of a school, that he went to Egypt, and dwelt after his return at Athens, as well as that he was a disciple of Socrates and wrote much.

Aristotle.—Both works record that he was the son of Nicomachus the Stagirite, that he was a disciple of Plato, founded a school, visited Philip, and was for some time the teacher of Alexander. It may here be remarked that all the histories of Alexander the Great now in existence written by Arabs or Persians are of an entirely legendary character; and Niẓami, as well as Firdousi, gives even some imaginary statements about his intercourse with the emperor of China, which country he never visited.

The account of *Zeno* is very short in the R. Ç., where he is represented as having incurred the displeasure of the king, and of having bitten off his own finger. According to D. L. the Athenians issued a decree, the text whereof is given, presenting him with a golden crown, and ordering five men to be elected to

arrange about the constructing of it, as well as of a tomb whilst he was yet alive.

Ptolemy's biography is not given by D. L., but the R. Ç. correctly states that he was a great astronomer, born at Alexandria, and the author of the *Almagest.*

Thales is in the R. Ç. and in D. L. said to have been born at Miletum, and to have maintained that the beginning of everything is water.

Anaxagoras is, according to D. L., said to have maintained the opinion that similar particles are the beginning of everything; and the R. Ç. relates, according to Porphyry, that the origin of all things is one body, from which all bodies and corporeal forces came into existence.

Xenocrates and *Euclid* are dismissed with two lines each in the R. Ç. Who *Ankas* may be I am unable to make out; and the last philosopher mentioned at length is another Socrates, said to have been a disciple of Aristotle.

It is also worthy of remark that the laborious and pious author of the *Raudatuçafa* makes all the philosophers believers in the unity of God; whereas, only Socrates and two or three others excepted, they were all idolaters, who if they did not actually worship the statues called gods, demigods, and heroes by the Greeks, at least pretended to do so. Khondemir also, like his father, introduces a king in the life of almost every one of these philosophers, although in those times nearly all the governments of Greece were republican.

Chapter IV.

Influence of European learning on the Muhammadans of India during the present age, and what is required to make it more effective.

Peace alone is really favourable to true civilization, although occasional wars, absorbing only a small portion of the energy of a nation, will not materially injure it, but will, on the contrary, promote appliances and inventions connected with the defence of the land, such as artillery, fortification, ship-building, tactics, &c., in the same way as physical exercise rather strengthens than hurts the human body. On the other hand, frequent ones, and specially internecine struggles of long duration, will cause it to stagnate, and to retrograde, so that a country which has been during many years the theatre of war, and has, from exhaustion as well as from other causes, lost all the energy required for progress, must relapse into barbarism. History teaches us that civilization in a country is either progressive or retrograde, and that it is never entirely stationary. It naturally depends also much upon the impulse given to the arts, to literature, and to science; for in countries where this impulse is given only occasionally and spasmodically, not constantly cherished by sovereigns, governments, and powerful individuals, and consequently the love of civilization and enlightment has not taken firm root in the population itself, it must naturally

cease as soon as these artificial inducements and stimuli are removed. During the revival of letters in Europe after the Dark Ages, kings and princes most zealously encouraged commerce, literature, science, the trades, and everything connected with the promotion of civilization, and consequently of wealth. As has been already noticed above, they ordered many originally Greek works to be translated from Arabic into Latin, which was at that time the only cultivated and literary tongue of Europe; afterwards, when the Turks conquered Constantinople, and the effete Byzantine empire fell, a new impetus was given to literature by Greek scholars, many of whom emigrated to Italy; so that from that time Arabic books were neglected, and translations were prepared directly from the Greek originals.

From that time the strides of Europe in the paths of civilization became very rapid; greater attention was paid to the vernacular languages, they were cultivated, authors began to write in them, and the art of typography facilitated the acquisition of knowledge by multiplying copies of every book, and scattering the seeds of learning broadcast over the whole surface of the country. Universities, colleges, and libraries, which the Arabs had begun to establish, were now erected in all important cities, and learning and education were promoted in many other ways. Commerce expanded itself wonderfully, various inventions and machinery began to facilitate the production of articles necessary, ornamental, or

useful to humanity; the forces of nature, such as fire, water, and wind, were gradually made subservient to man; so that now he increases his wealth by means of them, communicates with the most distant regions of the globe in an incredibly short time, dives to the bottom of the sea, into the bowels of the earth, and rises into the azure sky.

True learning is never selfish: it cultivates not only the knowledge of one country, but seeks to become acquainted with the attainments of all nations, and tries to profit and to increase its own stock by them; it also endeavours to propagate itself everywhere, and wishes all mankind to share in its benefits. As far as Oriental literature and science are concerned, which alone legitimately fall within the scope of this Essay, learned societies have been established in Asia, in Europe, and in America, with a view to propagate them, to print, to translate, and to discuss the works of Oriental authors; and in this way many of them have become better known to the world, and not a few have been rescued from utter oblivion. All these societies regularly publish their Transactions. In London there is the Royal Asiatic Society, with the Oriental Translation Committee attached to it, which has considerable funds at its disposal, has been for many years in active operation, and has published a great number of extremely precious works. Freytag, a German, and Lane, an Englishman,—known by his translation of the

"Thousand and One Nights,"—have given us the best Arabic dictionaries in existence, compiled from the Ḳamús and other original sources; Fluegel, another German, has published the best edition of the Ḳorán, and has edited Haji Khulfah's great "Bibliographical Dictionary," in which the works of many thousand Arabic, Persian, and Turkish authors are registered: and Dr. Zenker's *Bibliotheca Orientalis* is likewise a work of great merit. The German Oriental Society, likewise, publishes Arabic and Persian works; and the Oriental Society of Paris has for a number of years been printing a collection with French translations in a most splendid edition, at considerable expense, with the aid of the Government. Also the Danes, the Italians, the Russians, and the Spaniards cultivate Oriental literature; so that there is scarcely a University of Europe in which Arabic and Persian are not taught. For further information on this subject the reader has only to pay a visit to the rooms of the Asiatic Society of Bombay, Calcutta, or Madras, or to subscribe to their journals, in order to become acquainted with what is going on slowly, but surely and steadily, in all branches of Oriental literature; even the catalogues of booksellers show what a great quantity of original Oriental works and of translations there is on hand in the book-markets. Even a Congress of Orientalists is annually held in one of the capitals of Europe.

The *Bibliotheca Indica*, which is being published in Calcutta a good many years, has given to the world

Arabic and Persian works on the Muḥammadan religion, on history, and on poetry, but has almost entirely neglected the mathematical and physical sciences. Perhaps it will not be considered irrelevant in this place to mention a very good treatise on arithmetic and geometry, namely, the *Khulaçut-ul-hisab* of *Buha-uddin-Amul*, printed as long ago as A.D. 1812 by the Educational Society of Calcutta, with the Arabic text and Persian translation running simultaneously on opposite pages. Though this work contains no high problems, and was intended only for a school book, and cannot be considered important, the fact of its having been translated into German in 1843 at Berlin, and into French in 1846, shows how such books are still appreciated on the European continent. The Algebra of *Muḥammad Ben Musa* was translated by Frederick Rosen, London, 1831, and that of *Abu Bekr Muḥammad Ben Alhasan Alkarkhi* by Woepke in 1853, who also published and translated the Algebra of *Omar Alkhayyáni*, and appended to it extracts from unedited manuscripts. The same eminent Orientalist had also begun to translate into French the celebrated *Towárikh-ul-Hind* of *Abu Raihán Albeyruny*, but was overtaken by death in 1864. The works of Messrs. Sédillot, father and son, and of other scholars, illustrating the astronomical and mathematical sciences of the Arabs, are too well known to those who take interest in them to be rehearsed in this place.

From what has just been said, it may be seen that works neglected or lost in India—for no copy of the *Towárikh-ul-Hind* could be found in the whole of this country—are eagerly taken up in Europe and translated. There Arabic and Persian manuscripts find a ready and profitable sale, and the libraries of the great capitals of Europe are well stored with them. A few years ago the king of Prussia purchased more than a thousand Arabic, Persian, and Urdu manuscripts from Dr. Sprenger on his return from India. There are Arabic newspapers in Algiers, Cairo, Beiruth, and Constantinople, where lithographic presses are constantly at work in multiplying books and newspapers. The Viceroy of Egypt keeps a large printing establishment at Bulak, where many Arabic, Persian, and Turkish authors are printed, and the author of this Essay has used *Kamús* with Turkish explanation, and a copy of the *Thousand and One Nights* in Arabic, both "typographed" at that place, and very creditable to it. The Algerines, the Egyptians, the Persians, the Syrians, and the Turks often make translations from European languages and profit by them; here, only the most enlightened portion of the Moslem community is ready to make use of such books, but the superstitious manifest great aversion to all European learning, and will not read a book translated from a European language, or composed by a Faringhi, especially if typographed. The Muhammadans themselves are, however, ready enough to avail them-

selves of the use of lithography, in which way numerous books and newspapers are propagated in all parts of India. From Bombay, where more than fifty presses are at work, large quantities of books are exported to countries beyond the British possessions. These books treat generally on religion, poetry, history, or ancient medicine, but as they were composed at a time when medicine and all other branches of knowledge were, if not actually in a state of infancy, at least in not as advanced a degree of progress as now, they often propagate only the most lamentable errors. Hence it happens that highly accomplished and educated Muhammadans who have not enjoyed the advantages of European learning have the crudest notions of geographical and historical facts which are familiar to every school boy. Practical works on the industrial arts, mechanics, agriculture and trade are entirely wanting.

The curriculum of purely Muhammadan schools still resembles that pursued in Europe during the Middle Ages, as will be seen from the following account by Burton, who describes a Madrassa, which may serve as a sample of such institutions (*Sindh and the Races*, &c., by R. F. Burton, Lieutenant, 1851); the studies are as follows:—

"1, *Sarf* and *Nahu*, grammar and syntax; 2, *Mantik*, logic; 3, *Fikh*; 4, *Tafsir*; 5, *Hadis* (various branches of divinity).

"A short account of the text-books may be found not uninteresting. The pupil had probably been taught at his school the simple

parts of *Sarf*, or the forms of Arabic conjugations. The first work read was the little treatise called *Mizan-i-Sarf*, upon the subject of the regular verb *faala*, and also the work called *Ajnas* or *Munshaib*, a set of simple rules for the formation of the increased derivatives. The *Kism-i-duyyum* treats of irregular verbs, and teaches the *Sarf-i-Saghir* (opposed to the *Sarf-i-Kabír*, or the conjugation of the verb throughits present tense), or the paradigma. These two books were written in Persian by the same saintly pen of Lal Shah Baz. The third treatise usually read is one called *Akd*, also the work of that author, but composed in Persian and Arabic mixed. It treats upon the almost endless subject of the permutation of letters; the fourth volume is called *Zubdat*, and further illustrates the same branch of language. The pupil now commences the study of *Nahu*, or the declension of the noun, pronoun, &c., and first reads the well-known *Miat Amil*, or the hundred governing powers with its Sharh or commentary (two elementary treatises published by Capt. Lockett, Calcutta, 1814). After the repeated perusal of these works he returns to the work of Mir Sayyid Ali Sherif (the equally well-known book on syntax by the same author is seldom read), or more commonly called the *Sarf-i-Zarradi*, composed in Persian and Arabic by the poet Jami. He now either terminates this course of reading, or, if anxious to attain high proficiency, studies the *Shafiyah*, a most valuable book written by the marvellous boy *Ebn Hajib*, who is said to have composed standard works before the age of ten. This, however, is, generally speaking, beyond the powers of either teacher or pupil, especially as very few of them have the valuable ancient commentaries of Jahreburdi or El-Razí. Returning to Nahu, the scholar studies the Nahw-i-Zariri, an Arabic treatise of Abul Hassan Ali El-Zariri El-Kohanduzi, and begins to learn Mantik or logic. In Arabic grammar the line of demarcation between the latter study and syntax is very faintly drawn, and no student can with any degree of facility progress in one without the other. To conclude, however, the subject

of Nahu, the highest books read are :—The treatise of Sejawandi, a work more valued than it deserves; the Hydayat-El-Nahu; and lastly the Kafyah, also by Ebn Hajib, of which there exists a translation into Persian verse, and is sometimes read. This Kafyah is committed to memory, and the celebrated commentary called the Sharh Mulla (Jami), together with the Hashiyah or marginal notes of Abd-Elhakim and Abd-Elgafur.

"In *Mantik* the first treatise perused is the Isaghuji (Isagoge of Porphyry) translated into Arabic by Asir Ed-din Abhari. This is always the first step; the next is the study of the *Kalakuli*,—so called because the quotations from the text-book are always prefaced with a *kala* (he said), and the annotation begins with *akulu* (I say),—a commentary on the above. Some students next read Shammah and its two Sharh, the text-book being committed to memory. The few pages called *Nim-ruzi*, half-day, and *Yek-ruzi*, one day, from the length of time it took to compose them, are next studied. After these the student proceeds to the serious study of the *Shamsiyah*, a highly praised work on dialectics by Hafiz. A somewhat bulky commentary on the above, called *Kutbi*, concludes the course, though some have been known to learn Zubdah, Tahzib, and Sullám. The tenebrious works of the Mirzas and the ancient logicians are never read. The science has a bad name in Islám, especially among the half-learned, who object to it on religious grounds. The Moslem theologian holds the dogma of the three moral certainties, namely, 1, The Korán or revelation; 2, Sunnat, the known practice of the inspired and infallible prophet; 3, Ijim, the universal consent of God's people or Islám. Now to these three the logician has the impertinence to add a fourth certainty, known to be of pagan origin, namely, the *Kiyas* or syllogism, which the theologian conceives to be a most diabolical idea. All, however, agree on one point, that it sharpens the intellect, although some assign the *modus operandi* to certain devilish influences.

"The first step in theology is to read and learn by heart the common works upon the Hanefi branch of divinity, as the Hydayat, &c. For the benefit of very young readers and the fair sex there are numerous vernacular treatises. The next step is to peruse some *Tafsir* or commentary on the Korán, as the Jalalain, Madarik, Baizawi, Ismai, Kashshaf, Jawahir, Hosayni, and others. At the same time the *Ilm-i-Hadis* is taught.

"Very few youths advance so far in syntax and logic as to attempt the study of *Maani-bayán, i.e.* rhetoric. Those that do, seldom proceed beyond the text-book called *Talkis*, with its commentaries the Mukhtaçar and Mutawwal, as they are commonly called.

"The other studies are: 1, *Kiraat*, pronunciation; 2, *Munazarah*, art of wrangling; 3, *Uruz*, prosody; 4, *Tibb*, medicine; 5, The occult sciences—*Raml* (geomancy), *Najum* (astrology), and *Jafr* (a peculiar mode of divining by numbers); 6, *Towarikh*, or history, very seldom read; 7, *Hikmat*, or philosophy; 8, *Ilm-i-khat*, caligraphy.

"The student of *Tibb* or medicine begins by reading a few pages called *Tibb-i-Yusufi* in the Persian language, composed in verse and prose. He afterwards studies the Persian works called *Mizán* and *Tohfat-El-Mominin*, upon the subjects of Materia Medica and the practice of Physic; at the same time he frequents the *Ghandi*, namely, druggist-shops, and there learns his profession."

We all know that among us Greek and Latin occupy the same position to the vernaculars as Arabic and Persian to those of Muhammadan India; but how far should we be mistaken were we to give them such preponderance over all other vehicles of science as to believe that it is stored up in them alone, must be studied through them alone, and that they alone are worthy to

occupy our best time! That numbers of Muhammadans are of that opinion appears plainly enough from the curriculum of the Madrassa just described, in which it may be said that scarcely any practical knowledge at all is taught. Arithmetic, one of the most necessary branches of education, is not even mentioned by name; neither geography, natural sciences, mathematics, engineering, besides so many other branches now taught in almost every village school of Europe; and the scanty medical education imparted at the Madrassa seems rather calculated to kill than to cure.

Had the doctrine of the Motazzelites, chiefly founded on *free will* and on the rejection of *predestination*, which prevailed under the Khalif Al-Mámún, remained dominant, it might possibly have preserved Islám from the gradual petrifaction into which it has fallen, and from which it still suffers, and might have imparted to it strength for further mental development; but unfortunately even a system based on individual examination and on the liberty of the human mind may, when it has once attained power, vie in intolerance and in the proselytizing mania with the most orthodox absolutism. This was also the cause of the extinction of free inquiry during the reigns of the latter Abbasides, when the Motazzelites were cruelly persecuted and slain. Enlightened Christianity encourages discussion and research on all points, whilst Muhammadan dogmatism suppresses it whenever it can: therefore the former has tri-

umphed, its expansive vitality and civilizing influence are known everywhere, whilst the latter has succumbed in the race of advancement, and must now be content to follow in the wake of Occidental civilization, which has obtruded itself upon the East, like a healthy and vigorous man trying to awaken his brother from the baneful sleep of lethargy.

The popular Muhammadanism of India is no longer the religion laid down in the Ḳoran; which is indeed read here also, but interpreted in many ways by many sects inimical to one another. "In India Muhammadanism has deteriorated to open and barefaced idolatry in *Pirparasti*, that is, in paying homage to saints either living or dead; in *Gor-* and *Ták-parasti*, namely, adorning graves and cupolas with flowers, cloths, and lights, and worshipping them; in *Taziah-*, *Nál-*, and *Shada-parasti*, that is, especially on the part of the Shia'hs at the Muharram, in adorning models of the tombs of Hasan and Husain, in worshipping the figure of a horse-shoe supposed to be that of their horse, and that of a hand with the fingers expanded, called *Panjah*, and indicating the five personages Muḥammad, A'li, Fatima, Hasan, and Husain.[25] The degree of superstition and fanaticism which prevails in some portions of India may be learnt from the perusal of the following communication of a correspondent to the *Pioneer* newspaper in the month of April 1865:—"A very singular occurrence took place on the 13th instant at Bulooa in this district, which terminated

in the violent death of two of the boatman caste of that place. It seems that the *Mullas* of Bulooa, whilst engaged in *Sonee pujah*, got it into their heads that if blood were shed, some benefit would accrue to the community, and that the parties slain would rise again and would live for ever! Two of the most enthusiastic in the cause accordingly consented to meet death at the hands of the brotherhood. The throats of the wretched men were immediately cut, while their parents stood by and exhorted them to bear the pain, as they would be sure to return and live for ever. The police now interfered, and met with some rough treatment at the hands of these strange creatures, who did not approve of their orgies being interrupted. Upwards of a dozen defendants, male and female, in the case have been forwarded in custody to the station. This story will rather astonish those of your readers who are new to the country, and the manners and customs of the people."

It is true, the Muhammadans are not so much hampered by caste as the Hindus, but they have taken many customs and superstitions from them, which they observe religiously; these, however, only excite the laughter of Moslems of other countries; especially the Arabs who visit Bombay look with the utmost abhorrence and scorn on the tomfooleries performed during the month of Muharram and on various other occasions. This every unprejudiced person must admit who is acquainted with all their usages, or who has perused the *Kanoon-el-Islam*,

written by *Jaffur Shureef* in the Dekhani language, and translated by Dr. Herklots of the Madras Establishment, at which city the second edition of it was published in 1863.

For the benefit of the reader one or two quotations from the just mentioned work are here inserted.

On p. 97 we read that "most princes and nobles at their nuptials continue the *huldee* for six months, during which period they have music and entertainments daily, and performing the other ceremonies every fortnight, month, or so, complete the marriage in the course of a year." This is quite unheard of in any civilized nation; it is frivolous, expensive, makes people lazy, and keeps them away from useful and serious occupations; and as the lower classes imitate every vice or virtue of their superiors, they follow them in this respect also. Many a poor fellow not only spends all his previous earnings at the time of his marriage, but incurs debts, and falls into the clutches of grasping money-lenders, who take an enormous percentage, so that he is sometimes unable to get clear of his debts during the rest of his life. This fact is too well known all over India to need a long description.

Another thief of time and of money is the visitation of the tombs of various Pírs, of whom there are many, and whose miracles are often of a character to be believed only by very ignorant persons, and are calculated only to nourish superstition. So that Jaffur Shureef,

who is himself an enlightened gentleman, is, after relating a few of these pretended miracles, obliged to exclaim, on p. 163, "God knows whether these things be true or not. I have only stated what I have heard." Every sensible man must acknowledge that the long ceremonies connected with pilgrimages, holidays, festivities at births, circumcisions, marriages, deaths, and on other similar occasions, not only withdraw many persons from useful labour for the time being, but school them in frivolity, incline them to laziness, and make them love indolence during their whole lives.

There are also numbers of Fakirs in Hindostan, very few of whom are really pious men. They are mostly jugglers and impostors living on alms without doing any work, but pretending to work miracles. Thus we read on p. 193 about a certain set of them who are called "*Ruface* or *Goorz-mar*. They originate from Syed Ahmud Kubeer, whose fuqeers strike the point of the *goorz* against their breasts or into their eyes, level blows at their backs with the sword, thrust a spit through their sides or into their eyes, both of which they take out and put in again; or cut out their tongues, which on being replaced in the mouth reunite. Nay, they even sever the head from the body and glue them together again with saliva, and the body becomes reanimated, stands up, and, what is strange, no hæmorrhage attends all this cutting and slicing; or, should there be any, it is very trifling, and in that case the operator is

considered inexpert. The wound is healed by the application of a little spittle; for at the time of becoming fuqeers the *moorshed* takes a small quantity of his own spittle, and applying it to their tongue says: 'Wield without apprehension the *goorz* upon yourself, and if cut apply a little of your spittle to the wound and it will quickly heal, by the influence of Syed Ahmed Kubeer.' They obey the injunction accordingly. Sometimes they sear their tongues with a red-hot iron, put a living scorpion into their mouths, make a chain red-hot, and pouring oil over it they draw their hands along it, when a sudden blaze is produced. I had heard it said that they even cut a living human being into two and unite the parts by means of spittle. They also eat arsenic, glass, and poisons, and stand rattling the *goorz* at the shopkeepers' doors. Should the latter not give something corresponding to their means, or make any delay in bestowing it, they begin to brandish the *goorz*. Sometimes these fuqueers even throw away the *pice* they thus receive, it being unlawful to take money by extortion." Men of exactly this stamp existed in Europe during the Dark Ages,—the *Flagellants*, who lashed their naked backs, somewhat resembled the *Goorz-mars*; certain *mendicants* or *fakirs* increased to such numbers that they became a burden, and lost their credit by their rustic impudence, their ridiculous superstitions, their ignorance, cruelty, and brutish manners, and were ultimately suppressed. They also

carried on their roguery in the name of religion, as well as the following superstitious practices, to each of which the author devotes a separate chapter with a detailed description as follows:—"Concerning the science of *Dawut* (exorcism), the method of establishing friendship or enmity between two individuals; the science of *Tukseer* (numbers), comprising the art of constructing *Taweez* (amulets); the ascertaining of unknown things by the viewing of *Unjun* (or lampblack, *alias* the Magic Mirror); the art of detecting thieves; of travelling; of finding the hour and day of the month most propitious for undertaking any particular business, &c. All these practices must in our times be considered quite ridiculous by all enlightened men, and must greatly hinder those who believe in them from properly carrying on even the daily and usual business of life. Thus, for instance, if a man has to go on a certain day to a place, but finds that it is an unlucky one and consequently remains at home, he is thereby often obliged to incur loss. The injury of the other practices here mentioned is also always greater than their benefit."

All that has just been said on this subject is by no means intended to disparage the book itself, which contains much useful information, and is a careful compilation, professing only to give what *exists* in the Muhammadanism of India without specially blaming or praising it. The author of this Essay ventures, however, to observe that as superstitious usages are not considered

to be the *Law* of Islám, the book ought not to have been named *Qanoon*, or at any rate such parts only as refer to the *Law*; because the Greek word KANΩN is the origin of the Arabic *Qanoon*, as well as of the English, French, Latin, &c. *Canon*, and means *law, regulation, rule*. After all, however, the signification of this word may have altered in India, and here possibly means also *custom, usage*, being taken in that sense by the learned and industrious author, who has carefully collected everything relating to the *law*, but chiefly to the *customs*, of the Moslems in India. It is certain that real progress will ensue only when authors become bold enough *openly* to discountenance and to condemn everything injurious to freedom of thought, to the development of the intellect, and to the activity of body and mind.

As long as the European nations carried on wars against each other on account of the difference of their religious opinions, and as long as Protestants and Roman Catholics persecuted each other, the arts and the sciences stagnated, civilization made very little progress, and there was no real prosperity, because the minds of people were engrossed and embittered by theological and political quarrels, and experience has shown that peace and religious toleration are alone favourable to true enlightenment. Therefore, the sooner associations are formed in India to get rid of all superstitious usages the better; and we look for a beginning to those who are in high positions,

or rich, or well educated, and able to influence and to leaven the masses by their demeanour in the world, by conversation, by writing useful tracts on practical subjects, and by disseminating them all over the country.

By discarding all prejudices of country and of religion, by freely mixing with Europeans, by learning their languages and sciences, by adopting their improvements, and by constantly trading with them, the Egyptians have during the past twenty years been constantly progressing in civilization, and have reached a high degree of prosperity. Thus, for instance, as late as in 1840 letters arrived irregularly, and were often months on the passage; now scarcely a day passes without the arrival of a mail from France, England, Austria, Italy, and Russia by their various lines of steamers. Then the produce of the country was carried off in a few sailing vessels; now a fleet of splendid merchant steamers is employed. Then there was no railway, no telegraph; now there are both, and lines in all directions are planned, which will be made as soon as the finances permit. There was no great production of cotton, but the demand for it has augmented its price, and its cultivation is being greatly increased. In former times Egypt was poor; at present it is gorged with gold.[26]

If the Moslems of India are only inclined to perform their part, this country must become very prosperous, flourishing, and enlightened; unfortunately, however,

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not only they, but all natives generally, as yet look up to the Sirkár for the initiative of every improvement; and, although they may perhaps have the will, they have not often the spirit of enterprise to undertake any measures for the public good, either single-handed, or by forming associations combining activity, talent, and wealth. A government, however, can be powerful only when the people are powerful, and rich when the people are rich.—Any person not utterly drowned in the sleep of carelessness cannot fail to perceive the immense advantages which telegraphs, railways, and steamers are now already conferring on the inhabitants by facilitating the means of communication, promoting commerce, teaching, and profitably employing millions of persons either in the construction, management, or supervision of all sorts of public works, and as officers or workmen permanently employed. Spinning mills, various factories, iron-foundries, saw-mills, and other establishments are also beginning to spring up, and benefit not only their promoters, but the spread of civilization in the country at large.

That the just and beneficent rule of the British Government is practically appreciated by the inhabitants of this country appears plainly enough from the emigrations that take place into British territory whenever a state under native rule suffers from tyranny, war, or misgovernment. One recent example of this kind will suffice:—In 1863 the principality of Bhawulpoor

was so disturbed that plunder, rapine, and murder were rife from the throne to the cottage. Therefore many of the peace-loving inhabitants of that country, anxious to obtain something like security of life and property, were emigrating in large numbers to Multan, thus adding to its wealth and manufactures,—many of the emigrants being tradesmen and silk-weavers, whose occupation is all but gone in a capital where steel and saltpetre are more in request than silks and satins.[27]

There are public schools imparting useful information which leads to distinction and wealth; also medical colleges, where physicians are trained according to the most approved methods of the present state of science, and not according to the ancient Arab routine that prevailed in Europe as late as the seventeenth century, but is now confined only to those who are excluded either by prejudice or ignorance from doing good to themselves and to their fellow-beings by practising medicine according to modern science; and even three universities in the three capitals, Bombay, Calcutta, and Madras. The Government has also two other objects in view, which are likewise of great importance to all those who desire the enlightenment of the millions of this great country. These two objects are alluded to as early as 1854 in an Educational despatch, and are now being carried into practice. The first is the substitution of grants-in-aid to all schools imparting a good secular education, under adequate local management, for the

system of schools under the direct management of Government; with a view "to the time when any general system of grant-in-aid, and when many of the existing Government institutions, especially those of the higher order, may be safely closed, or transferred to the management of local bodies under the control of, and aided by the State. The second is the spread of elementary education among the masses of the population, the dense and dark lower strata of which had hitherto been entirely neglected by the Educational Department. On this subject the despatch says (para. 4): "Our attention will be directed to an object still more important [than the high education of the better classes], which has been hitherto, we are bound to admit, too much neglected,—namely, How useful and practical knowledge suited to every station in life may be best conveyed to the great masses of the people, who are utterly incapable of obtaining any education worthy of the name by their own unaided efforts; and we desire the active measures of Government more especially to be directed for the future to this object, for the attainment of which we are ready to sanction a considerable increase of expenditure." The good intentions manifested in this despatch have not been carried out to the extent which is desirable; something, however, was done, and is being done every year, and there is no occasion to be despondent. There is also a Director of Public Instruction in each Presidency, whose duty it is to superintend all educational

establishments, to give an annual Report containing an account of the schools, and to suggest means for their augmentation and improvement.

Female education ought to be encouraged by Muhammadans, because its value is incalculably great, and because women at all times influence the male portion of the community to some extent, and as long as they remain uneducated they cannot be very useful and agreeable to their parents, husbands, or relatives. The wives of Europeans are not seldom the first teachers of their own children, often take a very active part in the business of their husbands, aid them by their rational companionship, and console them in all troubles.

In ancient and in modern times there existed gifted and educated women among the Moslems, but now the highly cultivated ones are few in number. We know from history that formerly women were not confined in zenanahs as at present, and that they enjoyed more liberty. The Bedawis, whose manners and customs have undergone the least change among the Arabs since the remotest times, greatly respect their women, and consult them on all occasions.[28] They have even a custom of giving the place of honour in battle to a beautiful maiden, who encourages the warriors to combat valiantly.[29] Among them only that education exists which the uncorrupted children of nature possess, and which has not given way to the squeamish feelings of jealousy, that

condemns the female portion of the community to imprisonment and seclusion.

The Arabs of Spain educated their females, and some of them were highly accomplished, as will appear from the following notice, taken from Almakkari, as translated by P. Gayangos :—

"Ummu-l-sa'd, daughter of A'ssem Al-hímyari, a native of Cordova, was learned in sound traditions, which she had from her father, her grandfather, and others. According to Ibnu-l-abbár, who has devoted an article to her in his biographical dictionary entitled At-tekmilah, she was better known by the surname of As-sa'dúnah. Among the numerous poetical compositions which we find ascribed to her the following distich deserves particular mention :—

"'Men generally court the friendship of strangers, and avoid
any intercourse with their own relations;
For relatives are like scorpions, or worse than they.'"[30]

Hasanah Al-yatimá, and Ummu-l-'olá were also two famous poetesses. Ummatu-l-'aziz Ash-sharifiyyah was, as her name sufficiently indicates, of the posterity of Hassan, son of 'Ali Ibn Abi Tálib. Al-ghosániyyah, a native of Bejénah, a considerable and famous district in the province of Almeira, is likewise counted among the poets who flourished in the fifth century of the Hijra.

"Al-'arudhiyyah, a freed slave-girl belonging to Abu'-l-mutref 'Abdurrahman Ibn Ghalbún the Kátib, was another distinguished female. She lived at Valencia, where she was taught by her master grammar and rhetoric, in both of which branches of knowledge she soon made such progress as to surpass her teacher. She also shone in prosody, and learnt by heart and wrote commentaries on the Al-kamil of Al-mubarrad, and on the An-nawádir of Al-káli. Abu Daud Suleyman Ibn Najáh says: 'I read under her direction the two above mentioned commentaries, and learnt

from her the science of prosody. She died at Denia, some time after her master's death, A.H. 450 or thereabouts (may God show her mercy!)'

Hafsah 'Ar-rakúnniyyah, daughter of Al-háji Ar-rakúni, was equally renowned for her beauty, her talents, her nobility, and her wealth. A notice of this famous poetess, as well as a selection from her verses, occurs in the work of Al-makkhi. The following verses, which she is said to have uttered extempore in the presence of the Prince of the Believers 'Abdu-l-múmen Ibn 'Ali, when about asking him for a favour, are justly commended:—

" 'Master of men! O thou whose gracious favours the people anxiously and confidently expect!
" 'Grant me a diploma which may be a promise to thy subjects,
" 'One upon which thy right hand has traced, "Praise be to God, the only one!" "[31]

"The poetess here alludes to certain signs of royalty introduced by the Sultans of the dynasty called Almuwáhedin (Almohades), and which consisted in writing at the top of their despatches, with a thick pen and in very large characters, 'Praise be to God, the only one.' "

Owing to the dread of publicity concerning the female portion of their households which prevails among the Moslems of India, examples of educated ladies cannot be adduced. There are, however, two that are well known. The first is the late queen dowager and mother of the present ex-king of Oude, who was highly accomplished, and was not only acquainted with the vernacular, but also with Persian and Arabic. Her Majesty could read like a Munshi, was strong-minded, and greatly disapproved of the effeminate life of her son, but could

effect nothing. When the vizier received the despatch from the British Government that Oude was to be annexed, he was afraid to break the news to the king, so he sent it to Her Majesty, who was yet undressed. She perused the letter, and exclaimed, "The kingdom is destroyed!" Then she went across the courtyard of the palace over to her son, barefooted as she was, and, not unlike the mother of A'bdullah the last king of Granada, she addressed him as follows:—"Are you now satisfied? Have you got at last the wages of your dancing, your singing, and your fiddling? Have I not often told you it would come to this? Did any of your fathers sing, and dance, and fiddle in women's clothes?" The king said never a word. This unhappy queen then went to England, with a slender hope of getting the annexation revoked, and afterwards to France, where she died.

The second bright illustration that Indian ladies are sometimes not only endued with great abilities and a strong character, but are also good rulers, is Sakandar Begum, the sovereign of Bhopal, the only woman wearing the decoration of the Star of India except Queen Victoria. Her mother, Koodsia Begum, the widow of the last Nawab, was only seventeen years old when she was proclaimed regent of the state, and as such she displayed a firmness of mind for which no one had given her credit up to that time. Being an ambitious woman, she refused to surrender her power when the next male

heir attained his majority, but after a lengthened contest she was compelled by the British Government to resign the throne to her daughter Sakandar's husband. The latter reigned but six years, and Sakandar Begum was, after a brief struggle, in 1847 acknowledged by Lord Hardinge as sole regent, the sovereignty, however, belonging to her own young daughter. In that capacity this extraordinary woman administered the government with the greatest ability, freed it from debt, and organized her police. In 1857, when the mutinies broke out, she never swerved from her loyalty, but afforded shelter to British officers, and caused them to be escorted safely to Hoshungabad, although her own troops had mutinied, and some of her relatives had proclaimed a religious war against the British Government. When tranquillity and British supremacy were again restored in that part of Central India, there was but little for the authorities to do, because the Begum had established order and peace, had punished the guilty and rewarded the faithful. As it was always the Begum's greatest ambition to be acknowledged sovereign in her own right, one of Lord Canning's first acts was to fulfil her wish, with her daughter's consent. Long life and prosperity to the Begum!*

On the subject of women it may finally be added that the opinion generally prevalent among Muhammadans,

* She died on the 30th October 1868.

that the great liberty enjoyed by European females leads them into evil ways, is a mistaken one, and that they are obliged to retract it as soon as they become better acquainted with the true state of affairs, as Mirza Abu Taleb Khan has done, who spent several years in Europe, and in his Travels he relates the restraints imposed on women by the customs of society, and continues: "From this statement it is evident that the English have—in spite of the apparent freedom which they allow to their females, together with the flattery and hypocrisy they lavish on them—in several other ways, which do not appear hard to the ladies, knowingly restricted their liberty; and that the Musulmáns have—in spite of the established custom of the Purdah, which is a species of confinement, and inducement to disobedience and to wickedness—unwittingly given them liberty to commit wickedness, which they may indulge in by the aid of money, the servants of the Zenanah, and the children, or by going on visits to the paternal house, to relatives, and even to female friends, where they may stay from one week to the other during the day and the night."[32]

Associations, mechanics' institutes, debating and reading clubs can do much for the promotion of learning and enlightenment. The "Muhammandan Literary Society of Calcutta" cannot be mentioned with too much praise, and similar ones ought to be established all over the country. A great deal depends also upon private efforts, and great praise is due to Moulvee Abdul

Luteef, the Deputy Magistrate of Allipore and Member of Council, who intends to make the Hoogly Madrassa the basis of a sound system of Anglo-Arabic education, by establishing stipends, scholarships and fellowships as inducements to the pursuit of knowledge. The example of Syud Ahmed Khan, the learned Principal Suddur Ameen of Ghazeepore, deserves to be honourably mentioned and to be imitated. He possesses a press from which good vernacular books issue, and proposes to establish a society the object whereof shall be to print cheaply original Hindi, Urdu, Persian, and Arabic books, as well as translations from the best English and American works. Such undertakings are very commendable; but if it be considered that many Arabic and Persian books have already been printed, and are still being edited most carefully and correctly in London, Paris, Berlin, Leipzig, Vienna, St. Petersburg, and other centres of learning, and that in all these cities there exist either Oriental societies, or members connected with them, it will be admitted that the purchase of such books, and of the journals of those societies, would be a further step in the right direction. Of course public libraries, to which persons anxious to study might resort, ought to be established in the principal cities of India first, and afterwards in every town. As there exist numerous books of the best kind, not only in English, but also in the French, the Italian, and the German language, there is no reason why translations should not be

made from these, or from any other languages containing useful information. European languages might also be taught in colleges, for the time is gradually approaching when steam will bring India into still closer contact with European science and commerce. Some Indian Muhammadans have acquired their education in England, and it is nothing extraordinary for Algerines, Egyptians, and Turks to spend several years in Paris for the purpose of acquiring skill in medicine, engineering, the military art, &c.; and as for the industrial arts in India, some of them are carried on in so primitive a manner that they excite the greatest pity in the beholder, especially that of the weaver, whose constant toil is totally inadequate to compete with the products of modern looms; and the agriculturist uses the same industrial implements and follows the same routine as his ancestors thousands of years ago. There is scarcely a trade or art in India which could not be more profitably carried on if all the modern improvements were known.

Strangers unacquainted with the languages and customs of each other are naturally distrustful, and are the more so the less educated they are. Enlightened and learned men are free from many prejudices; such persons ought to consider it their sacred duty to spread light by conversation, by lectures, by books, and in all their transactions. There are thousands of Moslems who will not read a book, even in their own language,

merely because it was not written by one of their own religion or sect, although it may treat on some subject or science having no connection whatever with religion. Thus they act contrary to the saying of their own prophet, اطلبوا العلم و لو كان في الصين "Covet science, even if it be in China." Others again, Europeans as well as natives, instead of trying to promote friendship between the governed and the Government, use their best efforts to spread distrust and to disparage British rule in newspapers and books, as well as in their conversation, among people of high and low degree. They do not consider that there never was, nor ever will be, a government on earth perfect and free from all blame. From the beginning of the world the stronger have always governed the weaker nations, and will continue to do so to the end of it. Therefore the Muhammadans of this country will best promote their own interests, prosperity, and advancement if they cease to brood in dark melancholy over the past greatness and glory of ancient times, and stir up all their energies to an active life, enterprising in education, in science, in commerce, and in all useful arts, which alone can make them happy and prosperous in this world, and then only they will be able to exclaim

RESURGAM!

NOTES.

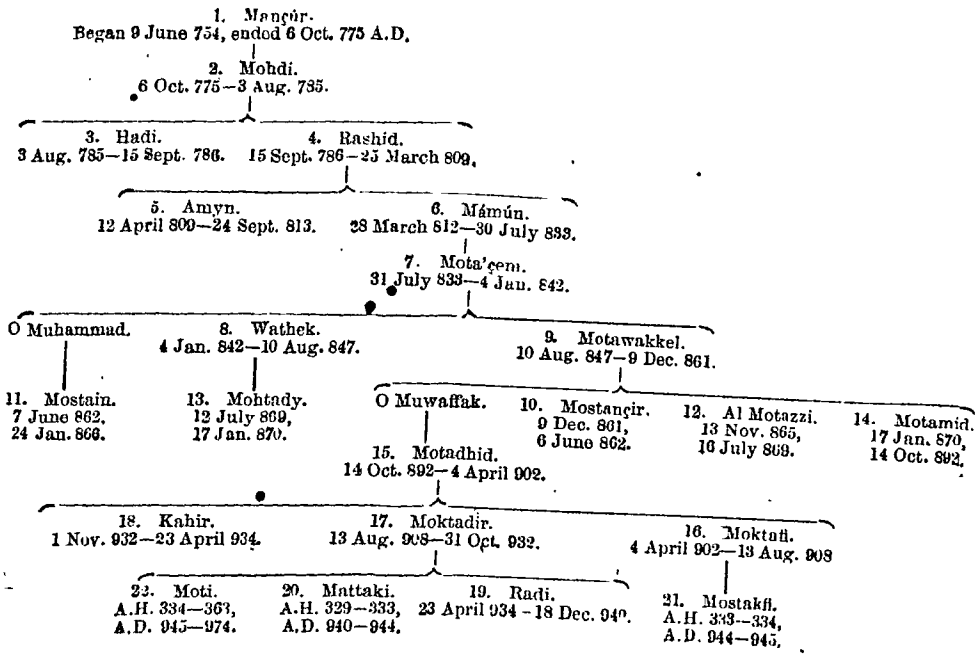
Abu-Bakr, the immediate successor of Muḥammad, would accept of no other title than that of *Khalif rosulullah* ('Successor to the Apostle of God'), which, together with *Amyr-ulmumanyn* ('Commander of the Faithful'), became the principal title of all the following princes.

Abbás, the son of A'bdulmuṭallab, Muḥammad's grandfather, is considered the ancestor of the *Abbaside* Khalifs. Moa'viah, son of Abi Sofyan, otherwise called *Ommia*, who began to reign Aug. 3, A.D. 661, and died March 7, A.D. 680, was the first sovereign of the dynasty which was, after him, called that of the *Ommiades*. The first mentioned are generally called Khalifs of Baghdad, and the second of Syria, because they resided at Damascus. The Ommiade Abdurraḥmán afterwards usurped the government of Spain, as will be shown in the proper place.

[2] Weil's *Geschichte der Chalifen*, I. 52 *et seq.*

[3] Calila et Dimna, en Arabe. Par. M. Silv. de Sacy, *Mém. Hist.*, pp. 10-12.

[4] The following genealogical table of the Abbaside Khalifs from Mançûr to Moti is given by Weil, but the beginning and end of the reign of each is taken from the *Annales Eutichii* in Arabic and Latin, Oxon. 1658. The individuals marked O did not reign, and the number prefixed to each name indicates the order of succession. Others begin the series with (Abul Abbás) Saffah ('the blood-shedder,' A.H. 135-36, A.D. 750-54), but Weil makes his successor Mançúr the first Khalif.


1. Mançûr.
Began 9 June 754, ended 6 Oct. 775 A.D.
2. Mohdi.
6 Oct. 775—3 Aug. 785.
3. Hadi.
3 Aug. 785—15 Sept. 786.
4. Rashid.
15 Sept. 786—25 March 809.
5. Amyn.
12 April 809—24 Sept. 813.
6. Mámún.
28 March 812—30 July 833.
7. Mota'çem.
31 July 833—4 Jan. 842.
O Muhammad.
8. Wathek.
4 Jan. 842—10 Aug. 847.
9. Motawakkel.
10 Aug. 847—9 Dec. 861.
11. Mostain.
7 June 862.
24 Jan. 866.
13. Mohtady.
12 July 869,
17 Jan. 870.
O Muwaffak.
10. Mostançir.
9 Dec. 861,
6 June 862.
12. Al Motazzi.
13 Nov. 865,
16 July 869.
14. Motamid.
17 Jan. 870,
14 Oct. 892.
15. Motadhid.
14 Oct. 892—4 April 902.
18. Kahir.
1 Nov. 932—23 April 934.
17. Moktadir.
13 Aug. 908—31 Oct. 932.
16. Moktafi.
4 April 902—13 Aug. 908
22. Moti.
A.H. 334—363,
A.D. 945—974.
20. Mattaki.
A.H. 329—333,
A.D. 940—944.
19. Radi.
23 April 934—18 Dec. 940.
21. Mostakfi.
A.H. 333—334,
A.D. 944—945.

The table of Eutychius ends with Radi, and that of Dr. Weil with Moti, but for the sake of completeness I here insert all the remaining sovereigns till the end of the Khalifate of Baghdad:—

23. *Al Taï*, A.H. 363-381 (A.D. 974-991), deposed.—24. *Al Kader*, A.H. 381-422 (A.D. 991-1031).—25. *Al Kaïm*, A.H. 422-467 (A.D. 1031-1075).—26. *Al Moktadi*, A.H. 467-487 (A.D. 1075-1094).—27. *Al Moktader*, A.H. 487-512 (A.D. 1094-1118).—28. *Al Mostarshed*, A.H. 512-529 (A.D. 1118-1135), murdered by the Assassins.—29. *Al Rashid*, A.H. 529-530 (A.D. 1135-1136), likewise murdered.—30. *Al Moktafi*, A.H. 530-555 (A.D. 1136-1160), defeated and imprisoned in an iron cage.—31. *Al Mostanjed*, A.H. 555-566 (A.D. 1160-1170).—32. *Al Mostadhi*, A.H. 566-575 (A.D. 1170-1180).—33. *Al Naçer*, A.H. 575-622 (A.D. 1180-1225).—34. *Al Zaher*, A.H. 622-623 (A.D. 1225-1226).—35. *Al Mostançer*, A.H. 623-640. (A.D. 1226-1240. 36.—*Al Mosta'çem*, A.H. 640-656 (A.D. 1240-1258), killed at the taking of Baghdad by Holagu. End of the dynasty, which continued, however, as a spiritual power in Egypt till A.D. 1577.

The following is a short chronology of the dynasty of the Ommiades preceded by the first Khalifs:—

Muhammad the Prophet. Born A.D. 571, died A.D. 632 (A.H. 11).—*Abu Bekr*, A.H. 11-14 (A.D. 632-634).—*O'mar I.*, A.H. 13-23 (A.D. 634-643).—*O'thman*, A.H. 23-35 (A.D. 643-655).—*A'li*, A.H. 35-40 (A.D. 655-661).—*Hasan*, A.H. 40-41 (A.D. 660-661), not counted by some historians, because he yielded his power to Moa'viah. Hasan was poisoned A.H. 49.

Dynasty of the Ommiades.

1. *Moa'viah I.*, A.H. 41-60 (A.D. 661-679).—2. *Yezid I.*, A.H. 60-64 (A.D. 679-683).—3. *Moa'viah II.*, A.H. 64 (A.D. 683), deposed after a reign of six weeks.—4. *Merwan I.*, A.H. 64-65 (A.D. 683-684).—5. *Abdelmelik*, A.H. 65-86 (A.D. 684-705).—6. *Walid I.*, A.H. 86-96 (A.D. 705-715).—7. *Soliman*, A.H. 96-99 (A.D. 715-717).—8. *Omar II.*, A.H. 99-101 (A.D. 717-720).—9. *Yezid II.*, A.H. 101-105 (A.D. 720-724).—10. *Hashem*, A.H. 105-125 (A.D. 724-743).—11. *Walid II.*, A.H. 125-126 (A.D. 743-744).—12. *Yezid III.*, A.H. 126 (A.D. 744).—13. *Ibrahim*, A.H. 126 (A.D. 744).—14. *Merwan II.*, A.H. 127-132 (A.D. 744-750), end of the dynasty.

[5] In the arrow-headed inscriptions of Darius the word *Iuna* is used for the *Ionians* and the Greeks of the islands. Among the Hebrews *Iavan*, like *Iunan* among the old Egyptians, designates the Greeks. Among the Greeks themselves this name is post-Homeric. The meaning of the word is 'young', which has in Sanskrit, Zend, Latin, &c., transformed itself into *juvan* and *juvenis*. (Lassen's *Indische Alterthumskunde*, I. 729-30.) *Rumi* was with the Arabs and Persians the name for the Greeks contemporaneous with them.

[6] This embassy and the present of the elephant I find also mentioned by an author of the eleventh century, William, Archbishop of Tyre, in the *Gesta Dei per Francos*, Hannoviæ, 1611, p. 630, who quotes the following passage from a biography of Charlemagne :—*Cum Aarum rege Persarum, qui, excepta India totum*

pene Orientem tenebat, talem habuit in amicitia concordiam, ut is gratiam eius, omnium qui in toto orbe terrarum erant regum ac principum amicitiæ præponeret, solumque illum honorare ac magnificentia sibi colendum indicaret. Ac proinde cum legati eius quos cum donariis ad sacratissimum Domini ac Salvatoris nostri sepulchrum, locumque resurrectionis miserat, ad eum venissent, et ei domini sui voluntatem indicassent, non solum quæ petebantur fieri permisit, sed etiam sacrum illum et salutarem locum, ut illius potestati ascriberetur concessit, et revertentibus legatis suos adjungens, inter vestes et aromata, et cæteras Orientalium terrarum opes, ingentia illi dona direxit: cum ei ante annos paucos eum quem tunc solum habebat, roganti mitteret elephantem. Which passage I translate as follows:—"With Harûn the king of Persia, who, excepting India, possessed the whole East, Charlemagne maintained such concord in amity that the former preferred his favour to the friendship of all the kings and princes of the whole world, and wished to honour and magnificently to respect him alone. Therefore when the legates of Charlemagne, sent by him with gifts to the most holy sepulchre and locality of the resurrection of our Lord and Saviour, came to Harun and signified to him their master's wish, he not only allowed those things to be done which were requested, but also permitted that holy and salutary place to be ascribed to the dominion of Charlemagne, and, adding to the returning ambassadors his own envoys, he made, besides clothes, perfumes, and other riches of Eastern countries, immense presents to Charlemagne, after having, according to the request of the latter made a few years ago, sent him the only elephant which he then had."

[7] To avoid constant references to Weil's *Geschichte der Chalifen*, I may here mention that the general notices on literature are mostly taken from him, and the special biographies from Montferrier's *Dict. des Sc. Mathémat.*

[8] Gibbon (*Decline and Fall*, &c., ch. 52) mentions that Honeyn was reciting the Iliad of Homer, which he knew by heart. Also of the *Ekhván-ussafa*, or 'brethren of purity,' a society at Boçra which published works, not much is known at the present time; see, however, *Zeitschrift D. M. G.* 1868, vol. 22, p. 355, where Dieterici's *Logic and Psychology of the Arabs in the 10th Century* is reviewed.

[9] The tenets of the sect of the Motazzelites are described by Sale in the Preliminary Discourse to his translation of the Koran, sect. VIII., pp. 112-113, ed. 1850.

[10] By orders of the French Government various degrees of latitude were measured in South America, in Lapland, in France, in Holland, Spain, &c.; but the Great Trigonometrical Survey of Hindustan, executed in our times, is one of the greatest scientific undertakings ever patronized by any government.

[11] Towards the middle of the eleventh century, the Persians, who had been for a long time subject to the Arabs, shook off the yoke of their Khalifs, but continued to cultivate the sciences which the conquerors had taught them. O'mar Sheyan, one of their most celebrated astronomers, reformed the calendar, wherein an intercalation occurs, which Dominic Cassini proposed in the seventeenth century as the most accurate Gregorian intercalation.

That scholar appears not to have been aware of this already ancient astronomical knowledge among the Persians. Two centuries afterwards Holagu-Ileku-Khan, the sovereign of Persia, most laudably patronized astronomical studies; and Ulugh-Beg, one of his successors (the same whose table of concordance between the years of the Hegira and of the Christian era is prefixed to Richardson's *Engl.-Pers.-Arab. Dict.*), must himself be placed in the rank of the best observers. He measured (A.D. 1477) the obliquity of the ecliptic, and drew up astronomical tables, surpassed in accuracy and perfection only by those of Tycho Brahe.

[12] There exist, however, works attributed to Alwaqidy, two of which have been printed in the *Bibliotheca Indica*, the one under the title of *Conquest of Syria*, and the other under that of *History of Muhammad's Campaigns*, but considered spurious at present.

[13] Gayangos' *Muhammadan Dynasties in Spain*, I. 77.

[14] In conformity with the law of the Koran, ch. viii. (Sale, p. 143, ed. 1850), as follows:—"And know that whenever ye gain any spoils, a fifth part belongeth unto God," &c. Fluegel, v. 42.

[15] At first the Arabs called the river Boetis by its ancient name بوت; but afterwards they called it غدالكبير *Ghaddulkabyr*, 'the great river,' or perhaps وادي الكبير *Vadyalkabyr*, which has the same meaning, and was transformed by the Spaniards into *Guadalaquivir*, its present name.

[16] I think when the Kadi spoke these words, he had in his mind the verses of the Koran, Surah *Zalzalah*, s. 30, v. 24:—

فمن يعمل مثقال ذرة خير يره ومن يعمل مثقال ذرة شر يره*

Sale's transl., ch. xcix., p. 496: "And whoever shall have wrought good of the weight of an ant shall behold the same: And whosoever shall have wrought evil of the weight of an ant shall behold the same." Fluegel, vv. 7, 8.

[17] Hallam, *Europe during the Middle Ages*, II. 482.

[18] *Ibid.*, p. 513.

[19] *List of Arabic and of some Persian words adopted into the European languages during the revival of learning, and still current in them.*

A

Abalorio, Sp., glass beads; Ar. البلور *Albalur*, beryl stone, used as a synonym for glass or crystal.

Açafeha, Sp., a brass plate; Ar. الصفيحة surface.

Acharnar, name of a beautiful star of the first magnitude at the extremity of Eridan.

Acidáque, Sp., from الصداق dowry assigned by a husband to his wife.

Adalid, Sp., from الدليل a guide.

Adarga, Sp., from الدرقة a short light shield made of buffalo-hide.

Adarme, Sp., from الدرهم a drachm.

Adive, Sp., from الذيب wolf, jackal.

Adobar, *Adobo* { Sp., from الدباغة tanning, 'puerta de Adabaquim,' 'the gate of tanners.' In the Magyar language this word is *Tabak*, received through the Turks.

Adufe, Sp., from الدف a sort of tabret covered with skin on one side.

Agalla, Sp., a scent called in Ar. الغالية.

Agaric, Sp., a fungus growing on trees, from اغاريقون.

Agate, name of a well-known stone, derived from عقيق.

Alabor, the star Sirius, العابر

Alacran, Sp., scorpion, from العقرب.

Alamin, Sp., from الامين an inspector, a trustee.

Alanfeta, the name of a vein betwixt the chin and upper lip.

Alarde, Sp., from العرض the act of passing a review.

Alarife, Sp., from العريف an inspector of public works.

Alastrob, in alchemy, lead, from الاسرب

Alazor, Sp., bastard saffron, Carthamus cæruleus, *Kirtim*, from الزهر (pl.) flowers.

Albacea, Sp., executors of a will, from الوصايا

Albarda, Sp. (halbert, Eng.; Hellebarde, Germ.), at present a dorser, البردعة

Alberca, Sp., tank, from البركة

Albegala, one of the names of the constellation Lyra, البغالة

Albeytar, Sp., horse-doctor, from البيطر

Albogue, Sp., a sort of clarionet, from البوق

Albufera
Albuhera } Sp., a lake, from البحيرة

Alcahaz, a cage, from القفص; in Slavonic, on the Danube, *Kavez*.

Alcalá, a town in Spain, from القلعة

Alcalde, Sp., a judge, from القاضى

Alcantara, a town in Spain, so called from the famous bridge القنطرة near it erected by Trajan over the Tagus, which has hitherto resisted the effects of time and the destructiveness of man.

Alcantarilla, diminutive of the above, meaning little bridge.

Alcaria, name of a province in Spain, so called since the time of the Arabs, on account of the great number of its farms; derived from القرية village, hamlet, farm.

Alcatifa, Sp., a small carpet, القطيفة

Alcazar, Sp., castle, from القصر; also the palace of Segovia.

Alchitran, among alchemists, liquid pitch, from القطران

Alchemy, from الكيميا but of Greek origin.

Alcoba, *cupola*, *alcubilla*, *alcove*, are all derived from القبة

Alcohol, collyrium, from الكحل

Alcubilla, Sp., small dome over a well, &c., from القبية small cupola.

Aldaru, lentisk tree; in Persian medicine generally called دارو

Aldebac, birdlime, from الدبق

Aldebaran, the Hyades or five stars in Taurus, particularly the brightest, called the Bull's eye, الدبران

Aldhafera, a fixed star of the third magnitude in the Lion's mane: conf. *Ideler Untersuch.* p. 27.. ضفيرة

Alembic, also called Moor's head, from انبيق and لا نبک

Alerze, Sp., from ارز pine-tree.

Alfacca, also called *Alfeta*, a star named *Lucida coronæ*, from فكة

Alfaherero, Sp., potter, from الفخار

Alfajeme, Sp., a bleeder, from حجام

Alfanje, Sp., a short cutlass, from الخنجر

Alfaqui, Sp., a theologian, a lawyer, from فقيه

Alfondiga, Sp., *fondaco* Ital., from فندق

Alforja / *Alforza* } Sp., a travelling bag, from الفرجة a rent or opening

Algaba, Sp., a quiver, from الجعبة

Algaida, Sp., a forest, from الغيضة

Algali, alkali, nitre, القلي

Algalia, Sp., a scent, from الغالية

Algarot, antimonial part of the butter of antimony.

Algebar, the constellation Orion, الجبار

Algebra, a part of mathematical science, الجبر

Algedi, the constellation Capricorn; now only the star γ of it, الجدي

Algenah, the wing, name of a star of the second magnitude in Pegasus, الجناح

Algeneb, the side of Pegasus, الجنب side.

Algesiras, name of a town, الجزيرة

Algodaõ, Port., cotton, from القطن applied to a magazine where that commodity is stored; in Bombay and other places formerly belonging to the Portuguese the word has been Anglicized into

"godown," by which name a place where any kind of goods are kept is designated; although the Portuguese word, like its Arabic prototype, means only cotton.

Algomeyza, name of Procyon, a star in Canis minor, غُمَيْصَة

Algorab, star marked γ in the constellation Corvus, الغراب crow.

Algorithm, calculation, but probably derived from الغريم the debtor, in accounts.

Algol, Medusa's head in the constellation Perseus, الغول

Algosarel, wild carrot, from كزر

Alguacil, Sp., derived from الوزير vizier.

Alguaquida, Sp., dealer in matches, from الوقيدة

Alhabibe, Sp., chamberlain, from الحاجب

Alhaioth, also *Ahhatod*, but more correctly *Alayuq*, العيوق name of the beautiful star Capella in the constellation Auriga.

Alhandal, colocynth, حنظل

Alheal, cardamom, الهيل

Alhena, Sp., الحنّا the shrub called cyprus or privet, a decoction of the branches of which is used by women to dye their nails and eyelids (Gayangos, I. 513).

Alhondiga, same as *alfondica*, فندق

Alhoot, الحوت also corrupted into *Aliot*, *Aliath*, *Mirach*, &c., is the first star in the tail of Ursa major, marked ϵ.

Alidade, in astronomical and surveying instruments, is a rule of wood or metal; moveable, and bearing at each of its extremities a pin by which objects are looked at; حدأ meaning also anything sharp-pointed, and the limits of objects or of countries; the sing. is حديد; also *iron*.

Aliño, aliñar, derived from *Alhena*, q. v.

Alkameluz, a name given by some authors to the star *Arcturus*; the name given to it by the Arabs was *Alrameh*, الرامح

Aljaima, Sp., a hut of conical shape in vineyards, from الخيمة tent.

Aljava, Sp., quiver, from الجعبة

Aljembut, a species of acacia.

Aljibe, Sp., well, from الجوب

Aljofar, string of pearls, from الجواهر jewels.

Aljuba, Sp., a kind of waistcoat, from الجبة but some of the Arab horse-dealers who come to Bombay call their long robe by this name. Conf. Fr. *jupe, jupon*.

Alkermes, plant with a beautiful red juice, *crimson*, القرمز

Alloza, Sp., almond, اللوز

Almadia, Sp., raft and ferry-boat, المعدية

Almagest, the title given by Europeans, after the Arabs, to the treatise on astronomy composed at Alexandria by Ptolemy about A.D. 140. The name is formed from the Greek word μεγιστον,

very great, which the Arabs have transcribed by adding their article *al* into تحرير المجستي

Almak, a star of the second magnitude in the foot of Andromeda, المغ

Almallafa, Sp., a cloak with sleeves, from الملحفة a wrapper.

Almazara, in Spain a mill principally for grinding olives, from المعصرة a press.

Almenara, Sp., steeple, from المنارة hence also the Anglicized *minaret*.

Almicantarats or *Almucantarats*, small circles parallel to the horizon, which are conceived to pass through all the degrees of the meridian; their centres are situated on the perpendicular line that connects the zenith of a place with its nadir. They are also called circles of altitude, because they serve to mark the height of a star above the horizon. The word is المقنطرات *forming vaults in the form of a bridge.*

Almidana, Sp., from الميدان a place for exercising troops.

Alminar, see *Almenara*.

Almizcle, Sp., musk, from مسك

Almocaden, Sp., from المقدم *almuqaddam*, leader of the van.

Almojáver, Sp., a soldier employed in border warfare, المغاور

Almojabéna, Sp., a sort of cheese-cake, from جبن cheese.

Almoneda, Sp., sale by auction المناداة the crier being called ناد

Almotazen, Sp., by changing the final *b* into *n* from محتسب *Mohtesib*, an officer having care of the weights and measures.

Almoxarife, *Almoxarifar*, *Almoxarifazgo* — Sp. These three words are derived from خَرَفَ to collect the fruits, therefore the collector is called المُخَارِف *Almokharef*.

Almud, Sp., measure of grain, from مدّ *mudd*, which may be itself a corruption from the Latin *modius*.

Almunia, Sp., a garden, a spot of recreation, المنية

Aloe, الوا and الغود

Alpheraz, more correctly *Alfars*, الفرس the Horse, a name given to the constellation Pegasus, as well as to that of Equuleus, or 'small horse.' They are distinguished by the names الفرس العاظم 'the greater horse,' and قطعة الفرس 'section of the horse.' Some European astronomers call the beautiful star in the wing of Pegasus, marked *a* in the catalogues, by the name Alpheraz or Markab, and have thus ignorantly given two names to one star. This star is by the Arabs called مركب الفرس 'the vehicle of the horse.'

Alpheratz, a fixed star of the third magnitude in Aquarius. الفارث the Mouse.

Alphesera, the white briony.

Alpheta, a name corrupted from الفقه theology, given by the Arabs to the whole constellation of the Northern Crown. European astronomers have applied this name to a particular star of the same constellation.

Alrameh, a fixed star of the first magnitude in the constellation Arcturus, الرامح

Alrukak, in materia medica Manna Thuris.

Alrum, the tree which produces bdellium.

Alsadaf, mat. med., the purple fish Murex, الصدف

Alsharkur, a small lizard, perhaps so called from its piebald colour, الشقر

Alsimbel, spikenard of India, السنبل

Altair, *Atair*, or *Alcair*, names variously corrupted by European astronomers from الطير the Bird, by which the beautiful constellation Aquila, and also Cygnus, is designated.

Atith, the name of a plant, the gum asafœtida.

Alzaehi, a gourd called in the shops the citrul.

Alzagiat, general name for all vitriolic minerals.

Alqueria, village or hamlet, قرية

Alzarac, coarse brown camphor.

Amanar, preëminence of one planet over another, المنار

Ambergris, عنبر

Anemon, نعمان the name of a well-known flower.

Anoria, Sp., a Persian wheel, from الناعورة

Arak, a certain spirituous beverage, also oil of roses, metaphorically from عرق the etymological meaning of which is 'sweat,' and secondarily 'liquor.'

Arfil, Sp., knight in the game of chess, from الفيل the elephant.

Arrabal, Sp., a suburb, from الربض

Arrabel, Sp., a species of violin, from رباب French *rebec*.

Arraez, Sp., captain, from الريس

Arras, Sp., thirteen pieces given by the bridegroom to the bride, from عرس wedding.

Arrayan, Sp., sweet basil, from الريحان

Arrecifeh, Sp., causeway, from رصيف paved road.

Arrel and *Arrelde*, Sp., pound, from رطل

Arroba, Sp., الربع one-fourth part of a Kintar, q. v.

Arrope, Sp., a species of sweetmeat, from الرب

Arsenal, derived from دارصنعة house of construction; passed also into English, French, German, and Italian.

Aruz, ارز rice.

Atabud, Sp., bier for a corpse, from تابوت

Atalaya, Sp., watch-tower, from طلائع the pl. of طليعة

Atanor, Sp., lamp, from التنور oven; in alchemy, *furnace*.

Atarazana, same as *Arsenal*, q. v.

Atucia, Sp., tutty, a mineral product of Granada, توتيا

Auquia, Sp., an ounce, from اوقيا seemingly from Gr. *οὐγκία*.

Axarafe, Sp., a hilly country, from الشرف

Azafate, Sp., a tray, from سفاط

Azafran, Sp.
Azafranar
Azafranado
} Derived from اصفر yellow, but applied to horses it means black.

Azemila, Sp., a beast of burden, زاملة

Azeña, Sp., a sort of water-wheel, from السانية a camel employed in carrying water for irrigation.

Azequia, Sp., canal for irrigation, from الساقية which means the same.

Azimech, Arabic, name of Spica virginis (better السنبلة)

Azimuth, an arch of the horizon comprised between the arch passing through the zenith of the place of observation and the meridian of it, عظمة greatness.

Azofar, Sp., yellow, a kind of brass, from صفر. It seems to be the translation of the Latin word *Aera*, composed of the initials of the following four words, *Ab exordio regni Augusti*, which word St. Isidore thinks arose from a certain tribute imposed by Augustus, and was called *Aera, i.e.* copper money. How singular that we should have to learn from the Arabs the etymology of a Latin word!

Azucar, Sp., sugar. The root of this word appears to be the Hebrew שבר, an inebriating liquor distilled from the sugar-cane, whence the Persian شكر and the Arabic سكر from which the Latin *saccharum* is derived; it has passed into the Sp. *azucar*, Fr. *sucre*, Germ. *Zucker*, &c.

Azuda, Sp., a dam, from سد an obstruction.

Azulejo, a sort of painted tile very common in Spain, from الزليج

Azumbre, Sp., from زنبل

Azure, from لازورد a beautiful blue colour.

B

Barro, Sp., mud and clay for strewing floors, from بَرّ

Bath-el-Geyttors, a star in the abdomen of Balæna marked ζ in the catalogues, بطن القيتوس

Batn-el-hoat, بطن الحوت *i. e.* abdomen of the fish, a name given by Arab astronomers to three stars in the dorsal spine of the Piscis borealis, which is according to them in the 28th mansion of the moon.

Batyn, *i.e.* بطن abdomen, the name given by the Arabs to three very small stars close together in the abdomen of Aries.

Battyat or *Battat*, البطيات a name given by the Arabs either to the star of the Cup, in common with the constellation Hydra, or to the whole constellation of the Cup, in which they count seven stars. This name has been altered in Europe to *Albatina*. The Arabs also call it *El-kas*, الكاس chalice, drinking-vessel, which is found written by Europeans *Elkis*, *Alches*, *Alkes*, *Alhas*, *Alhes*, and *Alkarso*.

Bedalach, a kind of bdellium from Arabia.

Begala, or *Begalo*, correctly بغلة the mule, a name given by some Arab astronomers to the Lucida Lyræ, *i.e.* Vega.

Bellota, Sp., oak, from بلوط *Quercus glandifera*.

Benat-el-nash بنات النعش funeral girls : the three stars in the tail of Ursa Major are the girls; and the four others, forming a quadrangle, are the نعش *i.e.* bier or corpse. This name has been corrupted by astronomers to *Benet-Nash*, *Benec-Nosz*, and even to *Bene naim*.

Betelgeule, also *Betelgueux*, بيت الغول house of the goblin; a star of the first magnitude in the shoulder of Orion.

Bezoar, from Per. پازهر antidote to poison.

Borax, from بورق a well-known saline substance.

Borough Engl., *bourg* Fr., *Burg* Germ., &c., from برج

Bronze, Engl., Fr., Ger., &c., from Per. برنج

Burdo, Sp., coarse cloak or coat, from بردة *burdah*.

Butaca, Sp., a wooden case, from بطاقة

C

Cable, from حبل a thick rope; the same in French, German, Italian, &c.

Cabrusi, from قبروسي used in old books to express anything coming from Cyprus.

Cafela, Sp., analogous to قفل padlock.

Cafila, Sp., caravan, from قافلة

Cafiz } Sp., from قفيز a measure for grain containing 48
Caiz } *mudd*; one cafiz is also 4 صاع and each صاع 4 مدّ

Calabash, a gourd: Fr. *calebasses*, Germ. *Kürbiss*, Per. خربز

Callaf, from غلف and غرف a shrubby tree.

Camel, Germ. *Kameel*, Fr. *chameau*, Lat. *camelus*, &c., جمل

Camisa, Sp., Port., Ital., *chemise* Fr., قميصة (shirt).

Camphor, كافور

Cañada, *Cañeria*, *Caño*, } All derived from قناة a reed, Sp., *cañ*; figuratively a subterraneous canal, a water-pipe.

Candy, substance made of sugar, قند

Cantara, Sp., from قنطرة a measure for liquids.

Capers, كبّير

Carath, in materia medica, the Arabian acacia, قرط

Carmesi, Sp., a dye obtained from the *Coccus ilicis*: see also *Alkermes*.

Caryophillus, name of a flower commonly called the pink, قرنفل; this is now shown to be of Sanskrit origin—*Karan phul*.

Cazo, Sp., cup, from كاس

Chemistry, Fr. *chimie*, Germ. *Chemie*, from كيميا

Chorro, Sp., noise produced by running water, مرج الخر

Ciffra, Sp., zero, from صفر

Cipher, Fr. *chiffre*, Germ. *Ziffer*, &c.; see *Ciffra*.

Civet, زباد perfume obtained from an animal of this name.

Cofas, Sp., mast-tops, from كف *koff*, the hollow of the hands.

Coffee, Fr. *café*, Germ. *Coffee*, &c., قوة

Colic, قولنج

Copa, Sp., from قبّة a cupola.

Cubebs, from حبوب berries.

Cyther, from the Per. سی تار *si*, thirty, *tarah*, string: it may also be from سه تار *three-strings*.

D

Danique, Sp., a weight of two *kirats*, from دانق which is no doubt from the Pers. دانک the diminutive of دانه one grain.

Darsena, place in harbour for repairing ships: see *Arsenal*.

Darsini, cinnamon دارصيني: this comes, no doubt, from the Pers. دارو چينى Chinese medicine.

Debeh, name of a star in Ursa Major, دبّه she-bear.

Deneb, from ذنب tail, name of a star in Balæna.

Denebola, correctly ذنب اللبث tail of the lion; name of a star.

Denebalged, correctly ذنب الجدى tail of Capricorn; name of a star.

Dibujar } Sp., to draw
Dibujo } Sp., a drawing } Corrupted from ديباج a word for all sorts of silken stuffs.

E

Elche, Sp., from علج a barbarian, a foreigner.

Elephant, Fr., Germ., &c., الفيل

Elixir, from اكسير has analogy with the Lat. *lixivium*.

Emerald, Germ. *Smaragd*, from زمرد

Escarlata, Sp., from اسقلطون which means scarlet, Fr. *écarlate*, Ital. *scarlatto*, Germ. *Scharlach*, &c.

F

Fairy, Fr. *fée*, and Per. پرى

Fomalhaut, فم الحوت mouth of the (Southern) fish, a star of the first magnitude.

Fonda, Sp., from فندق

Forro, Sp., *fur* Eng., *fourrure* Fr., from فرو *faru*, used in Spain as the name for a skin-jacket.

G

Galan, subs. Sp., and *galantear*, verb—Engl. *gallant*, Fr. *galant*—has passed into almost every language of Europe; from غلام a slave, a page, a genteel youth.

Garbellar, to pass through a sieve
Garbilo, Sp., sieve
} From غربال sieve; whence the English *to garble* is also derived, through the Spanish.

Gibraltar, corrupted from جبل طارق mountain of Tarik.

Giraffe, from زرافة

Goose, from اوز

Guadalaquivir, from غدالكبير Guadalkabir or وادي الكبير Vady Alkabir, the great river, near Cordova.

Guadalabiad, from وادي الابياض the white river, near Valencia.

Guadalmedina, from وادي المدينة river of the city, near Malaga.

Guadaroman, from وادي الرمان river of the pomegranates, near Carolina.

Guadarrama, from وادي الرماء river of the throwing, near Madrid.

Guitar, from *cyther* (q. v.) by hardening the *c* into a guttural.

H

Halo, from هالة

Hamel, a star in Aries, حمل

Hanger, a cutlass, from خنجر

Haya, Sp., all sorts of reptiles, from حيّة

Henna, حنّا the plant *Lawsonia inermis* (see *Alhena*).

J

Jackal, Fr. *chacale*, &c., from شغال *shugál*.

Jaez, Sp., a species of raw silk, from خز *khur*.

Jar, Fr. *jarre*, a vessel to hold water, جرّة *jarrah*.

Jessamine, Engl., Fr., Germ., It., &c., from ياسمين name of a flower.

Julep, name of a certain beverage, from جلاب Ar., گلاب Per.

Jupe, jupon, Fr., from جبّة *jobbah*, robe.

K

Kermes, see *Al-Kermes*.

Kilate, Sp., a weight of four grains, from قراط or قيراط *κεράτιον*, a bean, and the weight of a bean.

Kiosk, a summer-house, from Per. كوشك *gaushak*.

Kutubuth, from عنكبوت a spider, used as a medical term by ancient European doctors.

L

Lacca, Lac, a vegetable production improperly called gum, inflammable and not soluble in water; from لق

Laud, Sp., *luth* Fr., *liuto* Ital., *lute* Engl., *Flöte* Germ., all derived from عود

Laud, Sp., a small craft, from لوح and الواح the boards.

Lazuli, from لازورد a sort of precious stone of a blue colour.

Lemon, Eng., Fr., Germ., &c., from ليمو

Loco, Sp., a fool, from الق folly.

M

Magazine, Engl., Fr., Germ., &c., from مخزن

Magus, from مجوس

Maquila, Sp., from كيل a measure of grain, whence مقيل the toll in grain which millers receive.

Marfil, Sp., elephant-teeth, ivory, from من اناب الفيل

Marjal, Sp., from مرج a grassy, marshy spot.

Marmor, marble, from مرمر

Maroma, Sp., a cable, from رمة

Masari, Sp., a cabinet, from مصرية

Mate, expression in the game of chess, from مات 'he died,' which has passed into all the European languages.

Maula, Sp, a shrewd man, from مولي a slave liberated by his master.

Minaret, see *Almenara.*

Mistico, Sp., a captured vessel, from مسطح

Mizcal, Sp., a weight of 1¼ drachms, from مثقال

Moz, Sp., from موز the Indian plantain; the Romans called it *Musa sapientium*, because they had heard that the wise Brahmans lived chiefly on it.

Mozarebe, Muzarebe, Sp., from مستعرب *mustarub*, is a man who tries to pass for an Arab, although a foreigner; Arab authors designated Christians in Spain by this name.

Mummy, from مروميا a kind of bitumen, formerly much used in medicine.

Musk, from Ar. مسک Per. مشک used in all European tongues.

Myrrh, from مرّ a kind of gum.

N

Nacre, Fr., from نقر mother-of-pearl.

Nadir, point opposite to the Zenith; abridged and corrupted from سمت النظر *samt annazar*.

Naphtha, a kind of fluid inflammable fossil, نفط

Narcissus, from نرکس name of a flower.

O

Opium, افیون } These two words have also passed into all
Orange, نرنج } the European languages.

P

Pfirschich, Germ.; *peach*, Engl.; from فرسيق *Firsik*.

Palsy, فنج

Pistachio, from فستق Ar., پستهٔ Per.

Punch, from پنج Per. *five*; a beverage composed of five ingredients,—water, brandy, milk, sugar, and lemon-juice.

Q

Quilate, see *Kilate*.

Quintal, Sp., Fr., from قنطر a weight of 100 pounds.

R

Rajar, Sp., to crush, to break down, from رحى a mill-stone; applied by the Arabs to any hydraulic machine.

Rostaban, from راس ثعبان head of the dragon; name of a star.

Rauda, Sp., any stream of water, from روضهٔ garden.

Rehen, Sp., hostage, from رهن pledge.

Res, Sp., one head of cattle, from راس head.

Retal, Sp., from رطل one pound of twelve ounces.

Rigel, from رجل the foot. Name of a star of the first magnitude in the western foot of Orion.

Rob, from رب also *Syrup*, from Per. شيرين رب literally 'sweet rob,' current in all European languages.

Romana, Sp., a salad with pomegranate grains, from رمن .

Rook, from رخ a piece in chess.

S

Sacre, Sp., a species of falcon very highly esteemed, صقر

Saetia, Sp., a boat, from شاطيّة *shattyah*.

Safareche, Sp., a reservoir for purposes of irrigation, صهاريج

Saffron, زعفران Fr., Ital., Germ., &c.

Salamander, from سمندر a certain fabulous animal.

Sandia, Sp., water-melon, abridged from تفاح السندى *tefahus-sindy*.

Seal, Lat. *sigillum*, Ar. سجيل from Per. سنگ كل; it occurs thrice in the Koŕán, *i. e.* xi. 84, xv. 74, and cv. 4.

Sesame, from سمسم

Shawl, from شال

Sierra, a chain of mountains or rocks, from صخرة *sehrah*, a desert, a Saharah; the derivation from a saw, Lat. *serra*, is too fanciful.

Simoom, سموم

Sofa, صفّة

Sheriff, شريف

Soap, صابون originally made of a kind of earth exported from Smyrna only.

Soda, صداع

Sponge, اسفنج σπογγος.

Stable, اصطبل σταβλιον.

Sugar, سكر Ar. شكر Per., *saccharum* Lat., *zucchero* Ital.

T

Tua, a district in Spain, from طاعة obedience.

Tabor, Eng. *timbal*, Fr. *tambour*, from طبل

Tagarino, from ثغر frontiers; a person from Arragon, corrupted to *Zegri*, the name of certain families.

Taifa, Sp., a body of men, from طايفة

Talisman, Engl., Fr., Germ., &c., from طلسم

Tamis Fr., *tamiz* Sp., a sieve, from تميز separation, distinction.

Talc, طاق a kind of mineral.

Tamarind, ثمرهند a pulpy vegetable medicine.

Tarantula, from رتيلا Per.

Tariff, from تعاريف

Tasse, Fr. and Germ., *tazza* Ital.; from طاسة Engl. 'saucer.'

Theriac, antidote, from تریاک

Tibar, Sp., also *oro de tibar*, virgin gold, from ذهب التبر

Toldo, S., awning, from ظُلّ *zollon*, shade.

Trafalgar, from *Taraf*, cape, and *gár*, cave, طرف الغار

Traxa, Sp., edge of cloth, from طراز skirt of a robe.

Typhoon, from طوفان. Probably the early navigators from Arabia to China brought this word from the latter country; for there is no doubt that it is of Chinese origin, and is composed of *tá*, great, and *fung*, wind, and consequently means *great wind*.

V

Veredarius, also *Veredus*, Lat., courier, Ar. بريد which is derived from the Per. بريدة cut, dock-tailed, the mules used for this purpose being dock-tailed. See Dr. Sprenger's translation of the *Golden Meadows* of Masudi, p. 331, note.

Vezier, from وزير

X

Xeme, Sp., a span, from شامة

Xerga, a kind of cloth which the Arabs and Spaniards used for mourning apparel, from شرقة *sherqah;* hence also the Engl. *serge* is derived.

Z

Zayal, Sp., probably from some African dialect, زغل a sprightly or comely youth.

Zaguacador, Sp., the crier in an auction, corrupted from سواق *suwwáq*, now a sort of market-broker.

Zaguán, from صحن an open court, and sometimes a porch.

Zamarra, Sp., jackets made of the skin of the *mustela scythica* the Scythian weasel or sable, سمّور *summoor*, Ital. *zimarra*, Fr. *simarre;* any kind of skin-jacket.

Zanca, Sp., the hind-leg of an animal, from زمكة *zamkah*, the root of the tail in a bird.

Zaque, Sp., skin of a goat prepared to receive liquids, from زق *zaq*.

Zaquizani, Sp., means now garret, but it is formed from سقيفة roof, by adding to it سامي *sámi*, meaning high.

Zarcalla, an astronomical instrument invented by الزرقال who flourished in the 5th century of the Hegira.

Zarco, Sp., a man who has blue eyes, from ازرق *azraq*, blue.

Zedoary, name of a plant, from زدوار or جدوار

Zelemin, Sp., a fluid measure, from زنبل *zumbel* and سلمي *salemy*.

Zenith. This is a corruption and abridgment of سمت الراس *samt-arras*, like Nadir, which is سمت النظر *samt annazar*. In the latter expression Europeans have retained the second, and in the former only the first word,—both, however, in a corrupted form, as usual.

Zocco, and *Zoco*, Sp., a narrow street lined with shops, from سوق *sooq*, market.

[N.B.—For the Spanish words the author is chiefly indebted to Don Gayangos.]

[20] Aryabhaṭa, a great Hindu astronomer and mathematician, also teaches the method of designating numbers by means of letters, and Lassen supposes his commentary on the *Surya-Siddhanta* to be the work which Albyruny calls *Tantra*, and to be the same which was communicated to the Arabs with two other Siddhantas during the reign of the Khalif Al-Manṣúr by an Indian astronomer who had come to his court, but from whom only the so entitled book, *i.e.* that of Brahmagupta, had been translated into Arabic by order of the Khalif Muḥammad Bin Ebrahim, and

had received the title of the great Sindhind (see Colebrooke's *Miscellaneous Essays*, II. 504, and Lassen's *Indische Alterthumskunde*, II. 1136). As there were two Aryabhatas, Orientalists were still at variance about the age during which the famous mathematician flourished, until Dr. Bhau Daji discovered, after a great deal of research and trouble, that he was born A.D. 470. (*Jour. R. As. Soc.*, "Brief notes on the age and authenticity of the works of Aryabhata, Varahamihira, Brahmagupta, Bhattotpala, and Bhaskaracharya. By Dr. Bhau Daji, Hon. M.R.A.S., p. 14; 1865, London.)

But although the Arabs were the disciples of the Hindus, they afterwards became their teachers, and especially Alkindy (Ben Essahak), who wrote in the ninth century on Indian astronomy and arithmetic, and has in his turn become an authority among the Hindus themselves, who studied and translated his works. Since that time *Tajikam* and *Tajikamsastram* (from the Persian *Tazy* تازي *i.e.* Arab) designates a treatise on astronomy. Numerous Arabic technical expressions have also become current in connection with the more ancient Greek names, as follows :—

مقارنة *mukarina*, conjunction.

مقابلة *mukavila* ☌, reflection.

تربيع *taravi* □, quartan aspect.

تسديس *tasdi* *, sextile aspect.

تثليث *tasli* △, triangular aspect.

هدّة *hodda*, fraction.

مصالحة *musallaha*, correction.

إقبال *ikkuvala*, perfection.

إدبار *induvara*, deterioration.

إتصل *itthisala* } conjunction.
متّصل *muthasila* }

إصراف *isarafa* } disjunction.
مصرف *musarifa* }

نقل *naktam* (for *nakla*), translation.

جمعة *yamaya*, congregation.

منع *manan*, prohibition.

قبول *kamvula*, reception.

غيرقبول *gairikamvila*, interception.

سهم *sahama*, lot.

إنتها *inthiha* } end.
منتهي *minthaha* }

And several more, the identity whereof cannot be verified with certainty. (Weber's *Lectures on Sanskr. Lit.*)

Also the division of the year into weeks, and the designation of the separate days thereof after the seven planets, among the Hindus is of foreign origin, as appears from the following statement in Lassen's *Indische Alterthumskunde*, vol. III., p. 83:—"The earliest well authenticated mention of this division is of the year 63 B.C., when Pompey found it in use among the Jews at the taking of Jerusalem (Dion Cassius, xxxvii., 16, 18, and 19.) It

is based on the fact that the twenty-four hours of the day are dedicated to the seven planets in the following order :—Saturn, Jupiter, Mars, the Sun, Venus, Mercury, and the Moon. If a beginning be made with Saturday, the holy-day of the Jews, then according to this distribution the twenty-second hour falls to the share of Saturn, the twenty-third to Jupiter, the twenty-fourth to Mars, and the first of the next day to the Sun, after the name of which the whole day is called. If this process be continued throughout the whole week, the names of the separate days of it (as current among all nations using the division of the year into weeks) will be the result. This manner of designating the days of the week is ascribed to the Egyptians, and was very ancient among them. To the Grecks and Romans it had been communicated by the Egyptians. The oldest mention of these names of the week occurs in the writings of *Varâhamihira*, consequently only in the beginning of the sixth century (A. Weber's *Ind. Stud.*, II., p. 666). From this it, however, by no means follows that these names of the week-days had, together with other astronomical doctrines, not already earlier obtained admittance among the Hindus; but only in daily life, not in the ritual, in which the original Hindu division of the month into a light and a dark half still continues to exist. From India the week with its days named after the seven planets has been carried to Java. But as it first originated in Egypt there can scarcely be a doubt that it was made known to the Hindus by merchants who visited their country for the sake of commerce.

[21] Howard's *Cyclopædia*, III., p. 1540.

[22] To clear up the story of this table I will here insert the statements of several authors on it, merely as a matter of curiosity. In the manuscript of the *A'jáyib ulbuldán* at my disposal, Kazviny writes as follows :—

والاندلس افتحها طارق بن زياد و موسى بن نصير فاصاب بها مايدة سليمان عليه السلام فيها جواهر لم يري خلق مثلها فقطع طارق قايمة من قوايم المايدة وصيّر مكانها اخري لا يشبهها فلما قدموا بها علي الوليد بن عبدالملك و كان موسى وجهها اليه فقال طارق انا اصبتها فكذبه موسى فقال طارق للوليد ادع بالمايدة فنظر الى قايمة فاذا هولا يشبه القوايم فقال طارق سله عنها فساله فقال كذى اصبتها فاخرج طارق اليه القايمة فصدقه الوليد وقومة المايدة الف دينار

"And as to Andalus, it was conquered by Tarik Bin Ziyad and Musa Bin Naçyr, and [Tarik] found in it the table of Solomon (peace be on him!), which contained jewels the like of which no man had ever seen. And Tarik cut off a leg of the legs of the table and substituted another for it, which did not resemble it. When it was brought to Alvolyd Ben Abdulmalek, because Musa sent it to him, Tarik said, 'I have found it,' but Musa denied it, when Tarik said to Alvolyd [the Khalif], 'Call for the table.' Accordingly the latter looked at the leg, and lo, it did not resemble the [other] legs. Then Tarik said, 'Ask him about it.' He asked him, and he [Musa] replied, 'Thus I found it.' Then Tarik

brought forth the leg, and Alvolyd believed him; and the price of the table was one thousand dinars."

The words of Abdulhakam, p. 114 (Weil, p. 530), are as follows:

"When Tarik came to Toledo he asked about the table—he had no more important business; it was the table of which the people of the book (Jews and Christians) asserted that it had belonged to Solomon the king of David, on whom be the blessing of God! Tarik had been told that this table was in a fort called Faras, a two days' journey from Toledo, and that the fort was commanded by a nephew of Loderik. Tarik sent to him and promised security to him and to his relatives. The governor came down to Tarik, who also granted him security according to his promise. Tarik then said, 'Give out the table.' Then he gave it out. On that table there were precious stones and gold as had never been seen before. Tarik broke off one leg and substituted another. The table was estimated at two hundred thousand dinars, on account of the precious stones which were on it. Tarik took also whatever else he could find of arms, of vessels, gold, silver, and precious stones, and conquered, moreover, unexampled treasures, and brought everything together to Cordova. There he remained and gave information to Musa of the conquest of Andalus and of the booty he had gained."

Al-Makkari (Pascual de Gayangos, *History of the Muhammadan Dynasties of Spain*, I., p. 47) asserts that this table of Solomon had originally been brought to Toledo from the sack of Jerusalem, that it was made out of one solid emerald, and that when presented by Musa to the Khalif Alvolyd it was valued at 100,000 gold dinars.

In another part of the same work (I. 286-287) it is said that the table did not belong to Solomon, but had been manufactured by Christians; it was of pure gold, set with the most precious pearls, rubies, and emeralds. "When the Moslems took Toledo it was found on the altar of the principal church."

[23] The following are Kazviny's own words :—

وقال عبدالله بن عمرو بن العاص فيما بين الهند والسند
ارض يقال لها كتام فيها بطة من نحاس على عمود من نحاس
كل يوم عاشورة انشرت جناحها وصدت منقارها فيفيض
من الماء ما يكفي زرعهم ومواشيهم وضياعهم الى العام المقبل

[24] The Sheikh Ebn Batuta began his travels A.H. 725 (A.D. 1324-5) and finished them A.H. 754 (A.D. 1353); they were translated into English by the Rev. Samuel Lee, A.D. 1829, and not long ago published in Arabic and French in the *Collection d'Auteurs Orientaux* at Paris.

[25] Rev. J. G. Deimler, in a paper entitled, "How may the Gospel be best made known to the Musalman population of Bombay?"

[26] The notice of the prosperity of Egypt is taken from the letter of a correspondent in that country to the *Times of India* in the beginning of 1863.

[27] Correspondent from Multán, *Times of India*, 1863.

[28] "Les Bédouins ont un grand respect pour les femmes; ils les consultent sur toutes leurs démarches."—*Récit du séjour de Fatalla Sayeghir cher les Arabes errans du grand désert.* Rap-

porté et traduit par les soins de M. de Lamartine, vol. I., p. 315, of the latter's *Souvenir pendant un Voyage en Orient*, London, 1838.

[29] In the just-quoted work the arrangements for a battle are described, and then the author continues (p. 347) as follows :—"Le Drayhy ordonna ensuite de préparer le Hatfé. Voici en quoi consiste cette singulière cérémonie : on choisit la plus belle fille parmi les Bédouins ; on la place dans un haudag richement orné, que porte une grande chamelle blanche. Le choix de la fille qui doit occuper ce poste honorable, mais périlleux, est fort important, car le succès de la bataille dépend presque toujours d'elle. Placée en face de l'ennemi, entourée de l'élite des guerriers, elle doit les exciter au combat ; l'action principale se passe toujours autour d'elle, et des prodiges de valeur la défendent. Tout serait perdu si le Hatfé tombait au pouvoir de l'ennemi : aussi, pour éviter ce malheur, la moitié de l'armée doit toujours l'environner. Les guerriers se succèdent sur ce point où le combat est le plus vif, et chacun vient demander de l'enthousiasme à ses regards."

[30] اخ الرجال من الا باعد والا قارب لا تُقارِبُ

أَن الا قارب كا لعقارب او اشد من العقارب

The chief merit of these verses seems to consist in the play on the homophony of the words *ákárab* and *a'kárab*, the former of which means *relatives*, and the latter *scorpions*.

[31] يا سيد الناس يا من يو مل الناس حزدو

امنن علي بطرس كين للناس عدو

تخط يمينك فيه بحمد الله وحدو

از این بیان واضح شد که انگلش باوجود دادن [33]
آزادی ظاهری و کمال تملق و چاپلوسی بچندین راه دیگر
کر بر زنان گران نمایند بدانایی ایشانرا مقید کرده اند و
مسلمانان باوجود وضع رسم پرده که نوعي از قید و محرص
بفتنه و فساد است از راه نادانی رخصت و مجال فساد
بدیشان داده که اختیار بر زر و چاکر زنانه و اطفال و رفتن
بخانهٔ پدر و اقربا بلکه زنان دوستدار و یک یک هفته روز
در آنجا بسر بردن از آن جمله است *

Travels in Europe and Asia, by Mirza Abu Taleb Khan, p. 398, Calcutta, 1812.

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